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Municipal Tax-Exempt Bonds For Single-Family Mortgages

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Over the last three years, municipal bonds have been used to buoy sinking housing markets. Revenue bonds, rather than general obligation bonds, have been issued for this purpose. Ostensibly, these bonds cost municipal government nothing, but the advantages offered by this method of obtaining funds for mortgage lending must cost someone something. These bonds are backed by below market interest rate mortgages. Mortgages carrying below market rates are capable of generating sufficient income to compensate bond holders, because the bonds have tax-exempt status, and that status allows the bonds to carry relatively low rates. Thus, the lower interest rates on the bonds and ultimately on the mortgages are made possible by an indirect subsidy from the Treasury. Of course, the burden of this subsidy falls on the general taxpayer.

It was lawful for municipalities to use their bonds to finance single-family housing for about 10 years before the first such use by Minneapolis. Chicago followed shortly in July 1978. Since then, the use of tax-exempt mortgage bonds increased tremendously, accounting for more than one-third of all municipal bonds issued nationally during the first half of 1980. This was up from less than 10 percent in 1978.

Only 12 or 13 states allow municipal bonds to be used for this purpose. However, if these programs had continued to be popular, most other states would probably have been induced to allow it. In fact, some states were considering such a change at the height of these programs' popularity.

The rapid growth in the issuance of tax-exempt mortgage bonds has generated substantial concern about economic effects other than improved housing markets. Primarily concerned about the revenue losses suffered by the Treasury as a result of the tax-exempt nature of the bonds, the US House of Representatives passed a bill in March 1980. Had this bill become law, it would have drastically restricted the use of tax-exempt bonds for this purpose.

With declining housing markets and rapidly rising interest rates later in 1980, majorities in the House and Senate apparently wanted the measure watered down. Ultimately, the House and Senate approved a revised bill. This bill was signed by President Carter, 5 December 1980, and became law 1 January 1981. Even though it is not as tough as the original House bill, the law still substantially restricts the issuance of tax-exempt mortgage bonds.

The purpose of this paper is to describe the mechanics of tax-exempt mortgage bond programs, to outline the effects of these programs prior to the new law, to review the most important features of the new law, to discuss current proposals for change, to identify the real problems these programs are designed to solve, and to suggest an alternative solution.

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The Mechanics of the Programs

The Revenue and Expenditure Control Act of 1968, as amended, gave tax-free status to municipal bonds if most of the proceeds are used for certain "quasi-public" projects such as residential real estate. This law gave municipalities considerable flexibility. It did not impose

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any limits on tax-exempt housing bond issues except a 1.5 percent arbitrage ceiling. In this context, arbitrage is the difference between the rates charged mortgagors (that is, the borrowers) and the rates paid bond holders.

Since the first of these programs was initiated about three years ago, the basic mechanics of these programs have not changed. The municipality authorizes a bond underwriter to sell the bonds. The net proceeds of the sale are deposited in a financial institution. Other institutions originate mortgages in accordance with their lending practices and the limitations imposed by the municipality. Part of the funds remain in reserve accounts that are typically interest bearing. These reserves protect the bond holders from default. Part of the funds are used to pay the underwriter. The borrowers receive funds at interest rates below the market rate. Borrowers may be required to pay for insurance in addition to certain fees and points. They send their monthly mortgage payments directly to the originating institutions. The originating institutions then forward the receipts, less their service fees, to a financial institution that pays the bond holders.

Riskier loans backing the bonds call for higher interest rates on the bonds. One way to keep risks low is to make a number of high quality loans, for example, loans to high-income individuals. Being fully aware of the relationship between risk and rates, municipal governments have not imposed severe limitations on income, assets, and loan size.

Over 80 percent of the municipalities had a ceiling on the incomes of borrowers in their programs. However, these ceilings have generally been quite high. They have ranged from a low of $18,000 to a high of $60,000. The most frequently used ceiling appears to have been $40,000. None of the programs has limited the assets of borrowers. Only 44 percent of the municipalities placed ceilings on the mortgage loans involved. The ceilings that were imposed ranged from $45,000 to $100,000. With such liberal restrictions, the local governments could easily achieve their goal of reducing interest rates on mortgages within the legal constraints under which they were operating.

Local Impact

Tax-exempt mortgage bond programs have an impact on local housing and mortgage markets. *Homebuyers, homesellers,* as well as *permanent residents* are affected. The *brokerage, homebuilding,* and *mortgage lending* industries are also affected. While not all of these effects are positive and not all of these effects are substantial, a number of them are both positive and substantial. This explains the political attractiveness of these programs.

Homebuyers benefit through reduced mortgage payments. The interest rate reductions at the time the bonds are issued have been in the range of 1.5 percent to 2 percent. In some cases, increases in market interest rates after the bond issue have increased this spread by the time mortgages have been issued.

Some benefits due to the lower mortgage payments have been shifted to home sellers via higher housing prices. However, some care must be exercised in interpreting the word "higher." Prices are higher with these programs than without. This does not mean that the programs necessarily cause prices to rise. It could be that prices are held steady when they otherwise would have fallen or that prices may fall less rapidly than they otherwise would have. The specific price effects depend on local market conditions such as the relative sensitivity of demand and supply to price changes and the severity of problems other than interest rates (for example, bad crops, or plant closings). In any event, house prices contain a premium associated with the below market interest rates.

The price effects that mean an advantage for house sellers mean a disadvantage for those owners not selling (that is, permanent residents). The source of this disadvantage is that higher prices result in higher assessments and higher property taxes. As is the case with other subsidies, the group that is injured by higher taxes is larger than the group of sellers that is advantaged; each injury is slight — but each benefit is meaningful. That is, the costs facing each homeowner are not as great as the benefits to each seller. The overall cost-benefit ratio for owners and sellers depends on the size of the program relative to the size of the municipality.

The fact that owners are likely to be disadvantaged by higher taxes does not mean that this need to be the case. There need be no such disadvantage if tax rates are reduced or if assessment practices are sensitive to the problem. However, tax rates may be inflexible downward as the result of obvious financial pressures on local government. Even if assessors were to recognize that the selling prices reflect both the price of the real estate, which is taxable, and a premium for mortgage credit, which is not taxable, they would find it difficult to make the proper adjustments.

Some commentators have characterized the property-tax effect as a benefit for the local taxing jurisdiction rather than as a cost to be borne by local taxpayers. The cost to taxpayers is stressed in this paper because the additional tax emerges by virtue of an aberration in financing arrangements rather than as the result of a change in the value of real property. The property tax is supposed to be an ad valorem tax on real property. However, this additional tax is based on a financial premium built into the selling price of the properties that happen

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to sell. If these selling prices are used to adjust assessed values throughout the community, then the property tax has become not only a tax on mortgage credit but also a tax on proximity to new mortgages. These are illegitimate uses of the property tax.

More transactions may appear to benefit the local brokerage industry, however the advantage is probably very slight. Most of the transactions are gained by "borrowing" transactions from the future or from adjacent municipalities. While borrowing from the future may be important in keeping the industry healthy during hard times, borrowing from adjacent municipalities at best beggars one segment of the industry for the advantage of another. This illustrates why, if one municipality has a program, there is a great deal of pressure for others to get one. That is, while it may not be altogether a positive experience for a municipality to have such a program, it appears to be quite undesirable to not have such a program while your neighbor does.

There is some potential for the home building industry and employment in the industry to be benefited by these programs. However if a program is thought to be short-term, it would be unwise for builders to add substantially to their inventories. Just as with transactions, production gains may be substantially offset by reduced building activity in the unsubsidized sector.

These programs have a number of effects on local credit market institutions. The institutions that are not usually in the mortgage market might be expected to be in favor of these programs and their own participation in these programs. They expect origination and service fees. Institutions that specialize in the mortgage market would be expected to be uncomfortable with these programs. Although even they should be willing to participate if it looks like a program is a certainty.

These programs are in direct competition with the traditional sources of mortgage funds. Even if the traditional sources are temporarily unable to make mortgage loans due to a dearth of deposits, these programs still represent competition with private industry. Credit transactions are taken away from future periods when traditional funds may be available. Thus, these programs cause traditional institutions to lose customers over the cycle.

Even though it is difficult to measure the local effects, the programs obviously succeeded in achieving their main goal of reducing interest rates on mortgages. However, without restrictive federal legislation, the possible proliferation of these programs and the rapid increase in associated volume of bond offerings would make their success in achieving goals questionable in the future.

National Impact

The impacts of these programs at the national level are profound. The national credit market is affected. The expansion of municipal bond programs not only costs the general taxpayer a great deal but also actually threatens the effectiveness of the programs. This not only is the result of interest-rate effects but also is the result of the breadth of potential subsidy recipients.

First, these programs offer obvious advantages to bond underwriters. These companies provide advice to the issuing municipality, sometimes as a paid consultant, and they find buyers for the bonds. For their underwriting services, they are paid fees of up to 2.5 percent of the value of the bonds (that is, $250,000 on a $10,000,000 issue). Although the fees paid to them in some of the first issues were reported by a Congressional Budget Office study to be unusually high, competitive forces may push the fees down.

The expansion of these programs tends to reduce the gap between the interest rates in the tax-exempt and the taxed sectors of the credit market. The range of estimates found in the literature is that $1 billion in mortgage bonds raises the tax-exempt interest rates by between 1 and 7 basis points, relative to the taxable rates. As the demand for credit in the tax-exempt sector expands, lower-tax-rate investors are drawn into this sector. The gap in rates between the sectors reflects the tax advantage to the last investor drawn into the tax-exempt sector. With a lower tax rate, the advantage is reduced, and the gap is reduced.

Rates in both the tax-exempt and taxed sectors of the credit market are raised by growth in demand for credit in the tax-exempt sector. It is clear who benefits and who loses from the higher rates. The investors (that is, lenders) receive benefits through what is sometimes referred to as increased producers' surplus. All investors in the credit market will receive higher rates even though only the additional investors require these higher rates. On the other side of the market, other borrowers, both private and public, face additional costs. They lose consumers' surplus. That is, rates rise and quantity demanded by other borrowers falls, the borrowers who remain in the market come closer to paying the maximum they would be willing to pay for credit.

Perhaps the most important national impact of tax-exempt mortgage bond programs is the loss of revenue suffered by the Treasury. Estimates in the literature suggest that each billion dollars of additional tax-exempt bonds costs the Treasury from $22.5 million to $30 million per year in the lost federal tax revenues during the life of the bonds. That federal tax loss is the subsidy that makes the below market interest rates possible. It is the general taxpayer who pays this subsidy. That is, the borrower in Urbana, Chicago, or Danville, and so on, is being subsidized by taxpayers all over the nation. If one community is getting a subsidy, other communities will want a similar deal. This partly explains the tendency for these programs to proliferate. Whether the loss to the Treasury equals the difference between what investors would earn at the preprogram market rate and what they earn at the tax-exempt rate depends on the sensitivity of other demand for credit to changes in the cost of credit. However, it is not far off the mark to think of the subsidy paid by the general taxpayer as equalling the tax payments avoided under the programs.

The fact that these programs work via a subsidy makes it important to note one very important principle: you cannot subsidize everyone. It is possible to tax some

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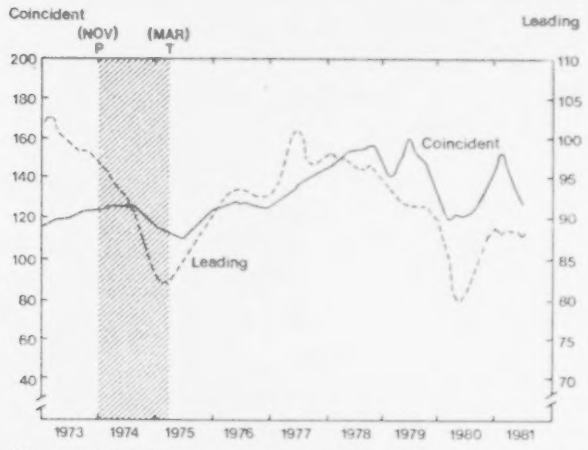
Leading Economic Indicators



Note: P and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.
Bureau of Economic and Business Research

The index of coincident economic activity declined to 127.9 during July from the level of 128.2 recorded during the previous month. The slight drop in July cannot be viewed as cause for alarm in and of itself; however, the fact that the index has been sliding for five consecutive months is not good news. When the current month's figure is stacked up against that recorded one year ago, it seems clear that economic conditions have improved, and this gives us some reason to applaud. The coincident indicator seems to be suggesting that business activity has reached a temporary plateau rather than a downturn.

The leading indicator posted a timid advance in July following the transitory setback in May. The dampening effect of a slight seasonally adjusted increase in the manufacturing layoff rate for Chicago was offset by advances in average weekly hours worked, building permits, and vendor performance.

Comparative Economic Data for Selected Illinois Cities, July 1981

	Construction activity				Electric power consumption (000,000 kwh)		Employment (000)		Estimated work force unemployed (percent)	
	Nonresidential buildings		Residential buildings							
	July 1981	July 1980	July 1981	July 1980	July 1981	% change from July 1980	July 1981	% change from July 1980	July 1981	July 1980
ILLINOIS	2,316	2,435	706	1,167	3,489.8[a]	+0.5	5,172.0	+3.4	7.7	9.9
NORTHERN ILLINOIS										
Chicago	63	47	30	10	1,666.0	+1.2	3,262.3[b]	+3.0	7.4[b]	9.2[b]
Aurora	13	20	7	11	112.8	-2.7	37.7	+3.9	9.0	10.6
Elgin	38	27	1	7	98.3	-3.8	28.8	+2.9	6.8	10.2
Joliet	15	45	0	14	386.9	+4.1	35.7	+2.9	11.7	16.0
Kankakee	2	4	0	2	84.1[c]	-0.4	37.6[b]	+2.2	11.1[b]	14.5[b]
Rock Island-Moline	29	23	5	15	128.5[d]	-2.9	105.0[e]	+2.7	7.3[e]	9.9[e]
Rockford	37	14	6	24	156.9	-1.0	125.0[b]	+5.7	8.4[b]	10.7[b]
CENTRAL ILLINOIS										
Bloomington-Normal	39	46	7	15	52.1	-2.8	55.0[b]	+0.7	6.1[b]	7.0[b]
Champaign-Urbana	15	16	11	16	56.5	-1.1	83.3[b]	+12.4	5.4[b]	6.8[b]
Danville	18	20	2	2	48.2	+3.4	15.9	-1.2	13.0	17.3
Decatur	16	33	4	17	147.1	+9.3	56.9[b]	+8.0	10.2[b]	16.0[b]
Galesburg	17	16	0	2	32.9[c]	+10.0	13.7	+4.6	10.8	18.9
Peoria	22	24	8	14	202.2	+0.3	163.4[b]	+3.2	6.9[b]	9.4[b]
Quincy	33	25	4	7	37.1	-13.3	16.4	+1.7	7.6	12.4
Springfield	16	27	6	14	115.9	-12.1	92.4[b]	+3.2	6.3[b]	8.8[b]
SOUTHERN ILLINOIS										
East St. Louis	0		0		23.7	-2.5	24.0	+11.1	9.9	15.5
Alton	3	2	1	15	77.2	+32.4	15.0	+11.1	10.1	15.7
Belleville	8	4	4	3	27.1	-13.4	19.0	+11.1	12.2	14.8
Carbondale-Murphysboro	15	8	2	20	36.3	-6.9	25.5[f]	+1.6	9.5[f]	10.3[f]

[a]Total for cities listed. [b]Data for Standard Metropolitan Statistical Area. [c]Includes immediately surrounding territory. [d]Includes East Moline. [e]Data for Illinois part of Davenport-Rock Island-Moline SMSA. [f]Data for Carbondale-Murphysboro LMA. n.a. not available.

Illinois Business Indexes

Item	July 1981	June 1981	May 1981	April 1981	July 1980
Leading indicator (1969=100)	88.7	87.9	88.1	88.2	80.9
Coincident indicator (1969=100)	127.9	128.2	129.8	138.4	122.8
Employment-manufacturing (in thousands)	1187.5	1195.8	1185.3	1185.0	1198.7
Average weekly hours-manufacturing	39.7	40.3	40.6	40.2	38.4
Weekly earnings-manufacturing	$ 350.29	$ 362.70	$ 362.15	$ 353.76	$ 311.42
Layoff rate-Chicago	0.8	0.9	0.7	0.7	1.3
Help wanted advertising-Chicago (1967=100)[1]	68.0	68.0	65.0	55.0	68.0
Help wanted advertising-St. Louis (1967=100)[1]	50.0	51.0	56.0	54.0	52.0
Ordinary life insurance sales (in millions)	$ 1,806	$ 1,898	$ 1,758	$ 1,916	$ 1,581
Retail sales (in millions)[2]	$ 4,261.8	$ 4,249	$ 4,326	$ 4,193	$ 3,822
Coal production (in thousands)	4,388	2,999	8	5,664	4,069
Petroleum production (in thousands)	2,030	1,930	1,990	2,042	1,893
Vendor performance, seasonally adjusted (percent)	46.7	45.7	49.5	52.2	30.8
Building permits (in thousands)					
Residential housing units	1.32	1.35	1.34	1.98	2.85
Value of residential housing	$63,576	$67,319	$69,418	$87,508	$107,752
Value of nonresidential construction					
Industrial buildings	$115,619	$23,937	$17,924	$49,043	$20,400
Office, banks, and professional buildings	$40,309	$52,803	$41,075	$37,833	$58,029
Stores and other mercantile buildings	$11,661	$12,574	$ 9,786	$17,652	$21,281
Other	$40,710	$80,488	$51,014	$53,676	$30,708
Consumer price index					
North Central US	-	142.6	-	143.7	-
North Central/population more than 400,000	-	150.0	-	151.9	-
North Central/population 385,000 to 1,250,000	-	146.6	-	147.5	-
North Central/population 75,000 to 385,000	-	142.3	-	143.2	-
North Central/population less than 75,000	-	143.1	-	141.1	-
Chicago	272.7	269.1	264.5	263.7	246.8
St. Louis	269.4	-	268.0	-	245.0
Prices received by farmers	132.0	130.0	131.0	131.0	121.0
	1981:I	1980:IV	1980:III	1980:II	1980:I
Personal income (in millions)	$128,645	$125,688	$123,234	$119,008	$116,227

[1]The Conference Board, *Help Wanted Advertising*, July 1981. [2]Most recent month projected by BEBR.

(continued from p. 3)

people and subsidize others. However, by taxing and subsidizing everyone, all that is accomplished is that people have lost consumer sovereignty and have lost purchasing power as a result of government processing their funds. Thus, ironically, the success of these tax-exempt programs — as demonstrated by their growth — has threatened their ability to work as subsidy programs.

Original House Bill

Over the next two years, the original House bill would have put severe limits on the volume of these programs, down payments, house prices, as well as the income and ownership experience of qualified borrowers. The volume of the programs would have been limited to 5 percent of a state's mortgage market activity. Down payments would have been kept low. House prices would be limited to 80 percent of an area's average. Arbitrage earnings beyond 1.0 percentage point would have been returned to the mortgagors. That is, the rate charged homeowners could be no more than 1.0 percent above the rate paid bondholders. This would be a significant change, especially when coupled with risk-related increases in program costs. Finally, borrowers would be only low and moderate income individuals who had not owned a home in the previous three years. Of course, all these requirements would be quite restrictive. Thus, there would not likely be many such offerings during the two-year period. After the two years were up, all such programs would have been banned.

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New Law

The new law represents a modification of the House bill. According to the new law, all mortgage bonds issued after 31 December 1980 must meet detailed requirements on eligibility of mortgagors, volume limits, home price limits, and arbitrage restrictions. The ban was postponed by an additional year beyond the deadline

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The Oil Crisis: A Closer Look

PAUL E. PETERSON

In a recent article appearing in this publication ("The Oil Crisis: A Case of American Underdevelopment," April 1981) Professor Folke Dovring argued that the present oil crisis is an example of a domestic development problem which could have been avoided by "adequate development policy" on the part of the federal government. He based his arguments on the premise that the US is rapidly running out of oil with little hope of either increasing domestic production or of surviving the energy problems that lie ahead. Since in his view we squandered our chances to develop alternative energy sources over the past three decades, he feels that we must now embark on a crash program to develop these sources before time and oil run out.

These misconceptions represent a very myopic view of both our current energy situation and the means by which we arrived in this predicament. Considering the dubious validity of these allegations, the "prophet of doom" school of thought has received a surprising amount of attention and credence in recent years. The purpose of this paper is to reexamine the major points of the Dovring article. What we will find is that they are not supported by history, actual data, or logic.

Domestic vs. Foreign Development

While it is possible to view the oil crisis as a domestic development problem requiring massive infusions of capital, technology, and government support, this viewpoint overlooks the fact that the current domestic "underdevelopment" is the direct result of another development program — the rush of capital, technology, and government support to develop the oilfields of what were once underdeveloped countries in the Mideast. A brief review of the record supports this observation.

According to the Federal Trade Commission in a report published in 1973 by the Senate Committee on Government Operations prior to the 1950s, domestic production was controlled by the individual oil-producing states under a system of prorationing, the purpose of which was to limit supply and maintain prices to individual oil producers. As oil imports grew, import quotas were imposed by the federal government on refiners and other purchasers of crude oil, first as voluntary measures beginning in 1957 and later as mandatory controls in 1959. These actions caused the price of domestic oil to exceed the price of imported oil, a margin that grew to $1.50 per barrel by 1971. Imported oil had such a clear and growing price advantage that political pressure was felt in Washington to force the removal of the import quotas.

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Meanwhile, our foreign-development efforts had been so successful that foreign production had greatly outstripped world demand. As documented in a 1972 article in *Foreign Policy* by Morris A. Adelman, foreign producers reacted to the imbalance by restricting production and later by imposing various "taxes" to raise the price. All of this was done with the consent and encouragement of the US and other oil-importing countries. The reasons for US cooperation in these maneuvers is unclear, but at any rate the US willingly gave OPEC the power it needed to create disruptions in the world petroleum market. Most notable of these was the ability to create the appearance of a shortage when none existed.

This transfer of power to the oil-producing countries occurred just as the US was removing its import restrictions on foreign oil. A domestic policy shift beginning in 1971 encouraged refiners to purchase as much OPEC oil as they could use, with price controls remaining in effect for domestic producers. This caused predictable responses. First, OPEC immediately raised prices to eliminate the $1.50 price gap mentioned earlier. This move was accepted with such grace by oil-importing countries that other ploys — taxes, such as, embargoes, and outright price increases — were brought into play, all with little hint of decisive action in Washington or elsewhere to combat these moves. In less than a decade the world price of oil skyrocketed.

Meanwhile, the price of domestic oil remained fixed at its 1971 level, leading to the second response. Since foreign ventures had become relatively more profitable, capital and technology fled from domestic exploration and production, all with the blessing and encouragement of our policymakers. Domestic production began to decline, and exploration ground to a halt. Combined with steadily increasing imports, many people came to conclude that all of America's oil had been drained, a myth

TABLE 1. US Production of Crude Oil

Year	Production (thousand barrels)
1970	4,123,366
1971	4,071,729
1972	4,093,584
1973	3,995,326
1974	3,818,683
1975	3,647,736
1976	3,588,731
1977	3,575,815
1978	3,751,470
1979	3,725,838
1980	3,753,355

Sources: American Petroleum Institute
Petroleum Economist, various issues

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TABLE 2. US Drilling Statistics -- New Wells

Year	Number of Wells	% Change	% Dry Holes
1970	29,467	-13.5	40.0
1971	27,300	-7.4	39.3
1972	28,755	+5.3	40.5
1973	27,602	-4.0	38.8
1974	32,893	+19.2	36.8
1975	39,097	+18.9	33.9
1976	41,455	+6.0	32.0
1977	46,479	+12.1	31.6
1978	48,513	+4.4	33.4
1979	51,263	+5.7	30.7
1980	60,809[a]	+18.6	29.7

Sources: American Petroleum Institute, US Department of Energy *Monthly Energy Report*, various issues.

[a]Preliminary figure; final number may be higher.

that has persisted despite mountains of evidence to the contrary.

Shifting Gears

Thanks to enlightened thinking in Washington, the domestic situation has improved drastically in recent years. While Dovring depended on various forecasts, predictions, and estimates to support his assertions that little domestic oil remains, a look at some actual industry figures presents a completely different picture.

Decontrol of domestic oil prices coincided with an increase in domestic oil production that has continued to climb at an increasing rate, stemming a decline that began in 1970 when US production peaked. These data appear in Table 1, and show that there has been a dramatic turnaround in production, particularly for a country that presumably ran out of oil long ago. This upturn can be attributed to three factors — increased drilling activity, improved recovery methods, and production from new areas.

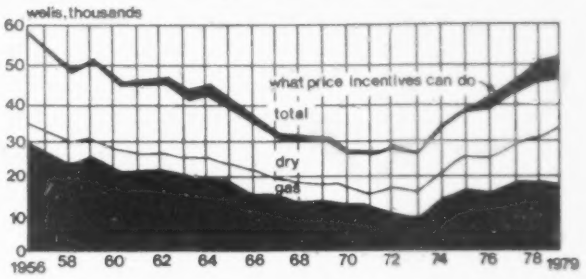
TABLE 3. Average Depth and Cost of New Oil Wells in US

Year	Average Depth (feet)	Average Cost (per foot)
1970	4496	$19.29
1971	4260	18.41
1972	4501	20.77
1973	4602	22.54
1974	3960	27.82
1975	4059	34.15
1976	4044	37.35
1977	4130	41.16
1978	4183	49.72
1979	a	a
1980	a	a

Sources: American Petroleum Institute, *Twentieth Century Oil Statistics, 1980*, p. 89.

[a]Not available

Chart 1 US Drilling Activity Since 1956



From *Energy Index 1980*, p. 72.

Drilling activity has increased beyond anyone's wildest expectations following decontrol, with the number of new wells drilled in 1980 setting an all-time record (Table 2 and Chart 1). This rapid increase was able to offset declines in production from older wells. In addition to the increase in drilling, the percentage of dry wells has been decreasing over time, a feat that would be impossible were the US rapidly running out of oil as many claim. The data in Table 3 show that the increase in production is not due to drilling deeper wells, another common misconception, and that the cost of drilling for oil has increased as has everything else which explains the increase in capital expenditures noted by Dovring.

Dovring flatly dismissed the importance of tertiary recovery techniques which enable the extraction of up to 50 percent of the oil in a well, compared to only 30 percent with conventional methods. Chart 2 indicates that the use of these enhanced recovery (ER) methods is increasing and that in 1979 ER accounted for 385,071 barrels per day, or 140,550 thousand barrels per year. This translates to nearly 4 percent of the total domestic oil production for the year, from only 226 wells. Considering that there are currently over half a million producing oil wells in the country and that ER methods are relatively new so they have not yet seen extensive use, tertiary recovery must be considered an important "new" source of oil.

Also rejected out of hand was the possibility of finding new oilfields in the US, particularly in the western overthrust belt located along the eastern edge of the Rocky Mountains. Recent discoveries by exploratory wells stretching from New Mexico to Montana have been widely and frequently reported in business publications, particularly *The Wall Street Journal*. These discoveries were possible only after the development of new drilling technology that can penetrate the complex geology of the area. Further developments in drilling technology will enable exploration for, and production of, oil from regions that would have been impossible only a few years ago.

Other significant finds off the coast of California and on federal lands in Alaska and the western states support the idea that there is plenty of oil yet to be discovered. The major problem in developing these resources is that the government owns three-quarters of

CHART 2. Summary of Enhanced Recovery (ER) Activity in US

U.S. ER production

Method	Production, b/d[a]
Steam	295,727
Combustion in situ	12,133
Total thermal	307,860
Micellar-polymer	930
Polymer	924
Caustic	550
Total chemical	2,404
CO_2 miscible	21,532
Other gases	53,275
Total	74,807
Grand total	385,071

[a]Barrels per day, 1979

Active U.S. ER projects

	1971	1974	1976	1978	1980
Thermal methods:					
Steam	53	64	85	99	133
Combustion in situ	38	19	21	16	17
Chemical methods:					
Micellar-polymer	5	7	13	22	14
Polymer	14	9	14	21	22
Caustic	0	2	1	3	6
Gas methods:					
CO_2 miscible	1	6	9	14	17
Hydrocarbon miscible	21	12	15	15	9
Other gases	0	1	1	6	8

Source: Reprinted from *Energy Index 1980*, p. 64.

the total land area comprised by Alaska, Nevada, Utah, Idaho, Oregon, Wyoming and California — all of which are promising but for the most part untapped sources of oil since drilling activity on federal lands has been sharply reduced or totally banned. The Chase Manhattan Bank estimates that these areas contain nearly 18 billion barrels of oil as well as 100 trillion cubic feet of natural gas. Along these same lines, some experts estimate that less than 3 percent of the country has been explored, meaning that 97 percent of the country has been largely overlooked. It hardly seems reasonable to assume that this 97 percent is totally devoid of oil, particularly before adequate exploration has taken place.

A "source" of oil that was completely overlooked by Dovring is conservation, largely as a result of higher energy prices. Consumption peaked in 1978, and then fell 9 percent in 1979 and another 8 percent in 1980 (Chart 3). This price response will undoubtedly continue for some time due to the long lag between the decision to cut oil consumption and the implementation of capital improvements (including replacement) that make it possible. This process applies equally to residential housing, motor vehicles, small businesses, and industries.

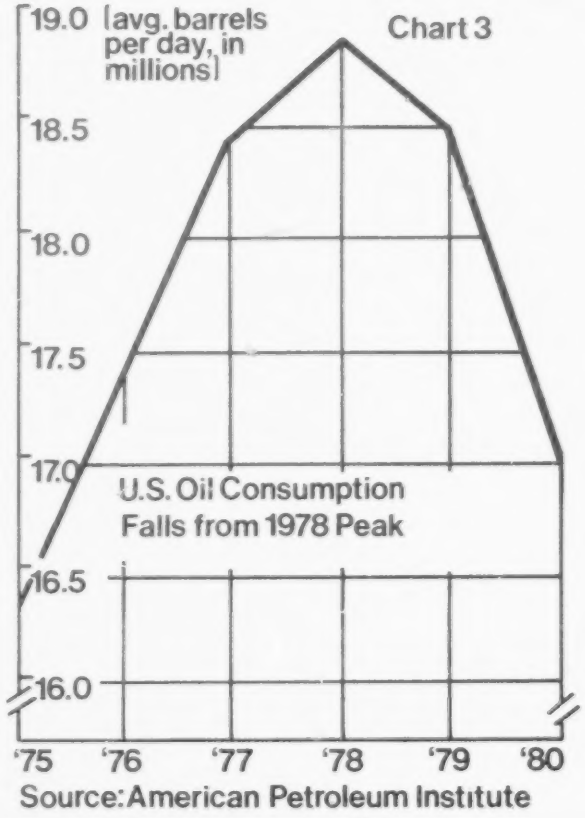
Misplaced Blame

Dovring ignores several important points in his contention that this is "a man-made crisis," caused by the shelving of the synthetic fuels program in the 1950s, the fascination with nuclear energy, and the construction of the interstate highway system. In reality, the synthetic fuels program simply was not economically feasible, either in 1953 when it was scrapped for the first time or in 1981. The problems associated with nuclear power can be attributed largely to a lack of knowledge combined with increasingly stringent regulations, but at any rate have little bearing on oil consumption. Fuel oil use by utilities accounted for only 3 percent of the nation's annual oil consumption in 1980, and this figure is rapidly declining, having fallen one-third since 1978. Finally, the interstate highway system was begun, not in response to a demand for freeways by motorists, but as a defense project that would enable the country to move strategic material in the event of a national emergency.

However, the "man-made" label does apply to several other important aspects of the problem. Had we not been so intent on developing the economies of the Mideast countries and instead attended to matters at home, we would be in a much more energy-secure position today. The world might never have witnessed the economic and personal disruptions caused by the oil cartel our policymakers helped create.

Today we are paying the price for the policy blunders

(continued on p. 12)



From the *Wall Street Journal*, June 4, 1981, p. 25.

Oil Crisis and Wishful Thinking

FOLKE DOVRING

Paul E. Peterson's "closer look" at the oil crisis is marked by incompetent use of data and logic. All his tables and figures are misused or beside the point, and his reading of events is flawed by faulty comprehension and wishful thinking.

In the Peterson article, Table 1 presents US production of crude oil (including natural-gas liquids). The numbers show a 5 percent rise in 1978 over 1977 and thereafter a „plateau; actually, more recent data show that neither 1980 nor early 1981 reached the mini-peak of 1978. Calling this a "dramatic turnaround" is bad judgment; saying that it has continued "at an increasing rate" is contrary to facts. The rise in 1978 was due entirely to the coming onstream of the Alaska North Slope field, discovered in 1970.

Peterson's Table 2 and Figure 1 both refer to drilling, which is a cost — not to production. When drilling increases more than production, this demonstrates the rising level of real costs, which hardly indicates rich resources.

Table 3 shows average depth of wells. It does not rise as one would expect from the prevalence of new oil finds after the "gusher" age is admittedly over in America. The continued moderate average depth of wells and the slightly falling proportion of dry holes both point to a fact not mentioned in the article — that much of the increase in production comes from "stripper" wells. These are shallow wells in old oil fields, often by "wildcat" operators, scraping up the leftovers from earlier oil extraction. How little there has been of new finds or enhanced recovery is made clear by recent tables in *The Petroleum Situation* (by Chase Manhattan Bank, with data from The American Petroleum Institute and Department of Energy): of domestic crude oil delivered to refineries in 1979 and 1980, one-fifth or more was from stripper wells, only a few percent from recent finds, and even less was "tertiary" oil.

Figure 2 is cited to show increased significance of enhanced recovery techniques. It shows no such thing. Production data are presented for only one year, and the numbers of projects — like the drilling data just discussed — reflect effort, not results. The claim to 4 percent of US oil production from enhanced recovery in 1979 does not hold either. The bulk of this is steam extraction, which is known to use up a substantial part of the oil extracted to make more steam, as in the Sonoma Valley in California. As shown by the Census of Mineral Industries (1977 over 1972 and 1967), the oil cost of oil is rising sharply. Enhanced recovery techniques contribute to this. It is the net result that counts. Oil strata needing enhanced recovery techniques are in net terms smaller than they appear in conventional estimates. Recent figures for "tertiary oil" going to refinery are smaller than those shown in the upper table of Figure 2. Enhanced recovery methods other than steam are shown with volumes small enough to be merely experimental. On one of them, carbon dioxide (CO_2) the verdict was not long ago that although a technical success, "It wouldn't have paid out at $100 a barrel" (*Petroleum Independent*, Oct. 1979, p. 22).

Figure 3 is an elementary example of how not to treat statistics. Calling the entire variation from 1978 to 1979 and to 1980 a "price response" is erroneous. The shape of the diagram — rises in 1977 and 1978, a slight drop in 1979 and a sharp one in 1980 — reflects weather, to a substantial extent. The winters of 1977, 1978, and 1979 happened to be unusually cold, those of 1980 and 1981 more normal, which had its effects on the demand for oil. The matter is better illustrated by recent data in *The Petroleum Situation* where the January/February, 1981, issue notes a fall from 1979 to 1980 (January through December of each year) of 7.9 percent, with the largest percentage declines in kerosine, distillate fuel and residual fuel, and less so in gasoline. The March issue instead has a "year to date average" of 1981 over 1980 with only a 3 percent decline in oil demand, with distillate fuel and residual fuel both drastically less reduced, because a different set of winter months enter the new averages. What remains of the price response is surprisingly little, considering both the enormous price upheavals and the slow time trend of conservation. The year 1980 was also a recession year, with no increase in national product to make oil demand look any better. Evidently, the price elasticity of demand for oil is very low. Consequently, any hoped-for economic expansion in years ahead will lead to renewed increases in the demand for oil.

For an admirer of private enterprise, the writer under review seems, curiously, to underestimate the people working in the petroleum industry. His reference to most of the country not having been explored for oil reads as if the petroleum people did not know what they are doing. Most of the unexplored areas do not interest them for very good reasons. Instead of presenting data on all oil drilling including the many shallow stripper wells, we should pay more attention to exploratory drilling because this is where new oil fields may or may not be discovered. The success rate of such drilling in this country has been falling for a long time. King Hubbert has pointed this out repeatedly. The same observation is included in the material used by Pagoulatos, Debertin and Pagoulatos (as cited in my article in the April 1981 IBR). Despite their very optimistic forecasts up to 1985, reserves are falling even in their calculations. The Department of Energy annual report to Congress of 1980 assumes the same. How hard the search for new oil has become is evident from attempts offshore. Statistics from the Department of the Interior (Geological Survey, and Bureau of Land Management) show that for several years, hundreds of federal oil drilling leases, covering millions of acres, have been issued in the eastern Gulf (since 1973), mid-Atlantic and Alaskan offshore areas (since 1976), and the south Atlantic shelf (since 1978), all without any oil production on record as of the report

for 1980, issued June 1981. Many of these leases were dropped after years of fruitless search (thus in the eastern Gulf after 1975, but also offshore Alaska after 1978). The only states with any offshore oil production are still the old ones — Louisiana, Texas, and California. With this record of offshore oil search, we must of course take most of the prospects onshore, and especially the "over-thrust" zones of the mountain areas, as the conjectures they are — which is also what responsible people in the petroleum industry do. If ever there are any large oil fields in the mountains, they will have to be discovered and tested for economic viability before we can count on them. To base national policy on conjecture is gambling with the nation's future at stake.

Peterson further underrates the economic astuteness of the oil companies. His analysis of events leading up to the first OPEC crisis in 1973 is so faulty that it even leaves him puzzled: "The reasons for US cooperation in these maneuvers is unclear." The reasons become very clear if we note the simple fact that from 1953 to 1973 national energy policy was made, in effect, by the large oil companies acting in concert. They acted in their own corporate interest, not in the interest of the nation. Within that framework they were both skilled and successful. Higher import prices meant higher incomes to the oil companies. But their objective did not coincide with the national interest, which is why the nation suffers from the economic consequences I analyzed in my April article. In their own interest, the oil companies helped build the excessively energy intensive transportation system in this country, as I have analyzed earlier in this publication (IBR, February 1981 and October 1974). The current Administration's policy of relinquishing energy policy back into the hands of the oil companies can only bring more of the same consequences. Emphasizing oil at steeply rising costs and to the neglect of alternatives with longer future will push us down a blind alley. The oil search abroad still goes on, wherever not blocked by OPEC or other foreign government policy (*Petroleum Economist*, July 1981, pp. 282f; compare also current reports in *International Petroleum Times*).

The writer also underestimates his readers. The old military argument for freeways never was very strong (indeed, as he must know, it was chiefly a constitutional convenience), but it has no application at all to urban freeways, which is what I emphasized. The low rates of return in ongoing R & D ventures (as in the early synfuel projects, and some current ones) are no more relevant than against R & D in general, which has among its objectives to find production techniques which will eventually become economical. Costs of conventional fuels are going up, not just "as everything else" as the writer claims, but much faster than other costs. Primary energy used to cost this country about 3 percent of its national product, but by 1980 it has climbed to 12 percent, far out of range for any previous experience. The day may not be remote when additional petroleum is among the more expensive alternatives.

The Peterson article makes no positive contribution to the oil debate. I have found no reason to modify what I wrote last spring, either in his article or in data that have become available up to now. Instead, his exercise motivates scrutiny for an entirely different reason: because it is an example of one of the factors that have caused the oil crisis and made it so difficult to handle. An attitude of wishful thinking, based on facts dimly perceived and treated with poor judgment and faulty logic, is widespread in the current debate. The general public tends to believe what it wants to believe, and faced with conflicting views it prefers the apparently most hopeful ones, no matter how weakly founded. Many politicians who know better shy away from hurting their constituents' emotions ("You're right, but it would be political suicide to say so" is a reply I have received time and again). But people who claim scholarly ambitions must learn to face facts, no matter how unpleasant.

(continued from p. 5)

in the House bill. Now there can be no more tax-exempt municipal housing bonds issued after 31 December 1983.

The new law restricts issuance of bonds until the ban goes into effect. The total volume of tax-free bonds issued in a state each year is limited to $200 million, or 9 percent of the state's average mortgage volume over the previous three years, whichever is greater. The allocation in each state will be divided 50-50 between localities and state agencies with some exceptions. In what may have been a concession to political power in Chicago, home-rule cities in Illinois will be allocated a priority share of the state's ceiling. This share is equal to the ratio of the home-rule community's annual volume of mortgages over a three year period to the total statewide mortgage volume over the same period. The remainder is to be split 50-50 between state housing agencies and non-home-rule localities.

Other limitations imposed by the law are intended to direct the subsidy to principal residences, low-cost housing, first homebuyers, and to problem areas. The subsidy can be used to finance a residence if it can reasonably be expected to become the principal residence of the mortgagor. Up to four-dwelling-unit buildings may be financed if at least one of the units is owner occupied. Home prices may not exceed 90 percent of the average price in the preceding year in that area. With a couple of exceptions, mortgagors may not have been homeowners within the preceding three years (that is, the three-year requirement). One of the exceptions allows mortgages for recent homeowners in "target" areas. Target areas are census tracts in which 70 percent of family incomes are no more than 80 percent of the statewide median income, or areas of chronic economic distress. Otherwise, there are no limits on family income. Finally the new law follows the 1.0 percent arbitrage restrictions of the House bill. This arbitrage limit may make these programs nearly extinct even before the total ban goes into effect.

Recent Developments

There have been serious problems with the new law. These problems involve the arbitrage limits, the lack of data on mortgage volume and purchase prices, and some ambiguous clauses. Some, if not all, of these problems may have been intended by the legislature. It is, after all, easier to kill a popular program with regulations than it is to declare an immediate and outright ban. Thus, these new federal restrictions will result in a significant reduction in the volume of a single-family, tax-exempt bonds. The expected decline in volume is more the result of difficulties localities are having in structuring programs to meet the new requirements than the result of the volume limits.

Many municipalities are being forced to postpone issuing the bonds because mortgage rates to consumers would exceed the 1 percent arbitrage limits. To satisfy the 1 percent arbitrage limit, the localities cannot reserve enough to protect bondholders from default, which, in turn, results in higher bond rates (that is, lower bond ratings). The fact that the bonds have been made more risky by the new requirements suggests need for a larger arbitrage limit, not a smaller one. Thus, communities which want to have a mortgage-bond program are caught in a bind.

In addition to the cost problems of bond issues, there are also difficulties in computing the average price of homes. Questions remain as to the appropriate data such as whether or not to include mobile homes, condominiums, and cooperative units. There are ambiguities with the three-year requirement, because it does not specify which member of the household is eligible. Finally, the volume limit clause gives no directions on how to compute the limits and the allocations.

Regardless of these problems, it is not likely that Congress will make a major change in the law this year. However, some legislative and/or regulatory action to eliminate some of the problems in issuing bonds is possible. Continuing difficulties in housing markets makes this possibility more likely.

Conclusions

The local effects of municipal-bond housing programs seem quite mixed. Home sellers and buyers split the advantage of the lower rates. The sellers gain via higher selling prices. These same higher prices are a disadvantage to owners because of resulting higher assessments and higher property taxes. There are some possible temporary and localized gains for the brokerage industry and the home-building industry. Most of these gains are borrowed from the future or from the unsubsidized sector. Finally, these programs cause private lending institutions to lose business over the cycle.

The national effects of these programs are of two major types: interest-rate effects and lost tax-revenue effects. The expansion of these programs tends to increase the interest rates in both the tax-exempt and taxed sectors of the credit market and also tends to decrease the gap between the interest rates in these sectors. Thus, lenders are advantaged and borrowers are disadvantaged. The loss of revenue to the Treasury is the source of the subsidy and also the source of a disadvantage to the general taxpayer. As such programs grow, they become less effective because they cause rates to rise and they face the general problem that government cannot subsidize everybody.

The new law provides for volume limits, restrictions on eligibilities as well as program structure, and an eventual ban on the programs. New restrictions (against high house prices and recent homeowners) imposed by the new law make the bonds more risky. At the same time, a reduction in arbitrage limits is only consistent with a decrease in risk. Thus, the new law has put potential programs in a bind that may mean an effective ban three years before the explicit ban was to take effect.

The problem being addressed by tax-exempt mortgage bonds may not be what is essentially wrong with our housing markets. Thus, this entire policy direction may be wrong-headed. What is needed is an analysis that identifies the source of the problem and suggests a more direct solution.

The real cost of credit does not vary greatly, although it is probably a bit higher currently than at any time over the past few years. The real cost is found by subtracting expected rates of inflation from nominal interest rates. For example, with nominal interest rates at 16 percent, and inflation rates at 11 percent, the real cost of credit is about 5 percent. If the real cost of credit is really so stable and reasonable, the problem we see in the housing market cannot be attributed to high nominal interest rates. Yet, the tax-exempt mortgage bond programs attempt to improve housing market conditions by reducing interest rates. These programs are inappropriate, because high interest rates are not the real problem. The problem nevertheless seems to relate to the affordability of credit, but in a different sense than high interest rates.

When inflation is coupled with mortgages that require constant payments over their terms, there is initially a cash-flow problem affecting borrowers. The real cost of debt service (that is, adjusting the mortgage payment for inflation) is initially very high and falls over the term of the mortgage. Given this analysis of the problem, it is not so important to develop policies to reduce mortgage interest rates as it is to change the stream of payments. If the real stream of payments and not high interest rates is the source of the problem, the solution is graduated-payment mortgages rather than tax-exempt mortgage bonds.

The graduated-payment mortgages offered by some institutions today are not really appropriate. These instruments require payments to rise at approximately an 8 percent rate over the first six years and then flatten out. What is needed is a mortgage instrument for which payments rise at approximately the long-run rate of inflation over the entire term.

The central problem for lending institutions is that interest rates have changed in unanticipated ways. When the market rates of interest rise, the market value of their mortgages falls. If the market rates are higher than the contract rates, the mortgages would be sold at a dis-

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count in secondary mortgage market. That is, the lenders suffer a capital loss. Even though they do not want to recognize this capital loss, lenders cannot ignore it when the interest rates they receive on their loan portfolio moves dangerously close to the rates they have to pay for funds. The income they receive for originating and servicing loans under tax-exempt mortgage bond programs has done nothing to solve this fundamental problem. We need changes in mortgage instruments to allow these institutions to survive interest-rate fluctuations.

It should be recognized that reform, other than macroeconomic policies to stabilize rates over the longer term, shifts interest rate risk from lenders to borrowers. It might be as much a mistake to go too far with reform in this direction as not far enough. That is, unconstrained variable-rate mortgages probably shift too much of the risk to borrowers. A happy medium would be rollover mortgages that call for a balloon payment after a half dozen years or so. With this type of loan, it is expected that refinancing or a rollover will occur at current market rates when the balloon payment is due. Thus the financial institutions avoid some, but not all, interest-rate risk.

(continued from p. 8)

of the past. Yet Doving has the audacity to call for still more policy solutions without being able to assure us that his policy recommendations are any more valid than those that have caused us so much pain. At the same time he is unwilling to allow "unguided market forces" to do their job while failing to recognize that the "guided" markets of the 1950s, 1960s, and 1970s are responsible for today's energy problems. It is only recently that the "unguided market" has been allowed to function, providing both the incentives to produce and the disincentives to consume that have started to turn things around. After observing the dramatic improvements brought about under the market system, why should we go back for another dose of central planning engineered by the same misguided policymakers?

In conclusion, it has been shown that the current domestic oil "crisis" is indeed a development problem: a case of an underdeveloped understanding of the energy problem by our policymakers, coupled with an overdeveloped belief in government solutions to government-caused problems. Recent experience has shown that allowing market forces to allocate resources is the only rational, efficient, and humane solution to a very complex problem. Stimulating domestic production of oil can buy us the time we need to find and develop the energy sources of the future with supply and demand, not policy, determining what those sources will be.

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The Decline in Interest Rates: How Far?

WILLIAM R. BRYAN

Most interest rates have fallen sharply since September. Even so, those rates of interest most meaningful to consumers — installment loan rates and mortgage rates — have not yet been affected. Moreover, despite the recent sharp declines in key interest rates, their general level remains high by historical standards.

How low are interest rates likely to move? What are the major factors that have a bearing on future interest-rate developments? In addressing these questions it is easy to move far beyond what is known, or even beyond beliefs that may be convincingly supported. The simple fact is that economists do not do a very good job at predicting interest-rate movements.

Notwithstanding the frailty of theory and the mischievous refusal of facts to conform to what theory there is, this article describes the potential for a further interest-rate decline. In part, the fall in interest rates represents an alignment of interest rates to the existing rates of expected inflation; in part, the further anticipated decline in rates represents a moderation in expected inflation. In turn, these developments are materially related to a protracted weakening in the economy and to the policy response to that situation.

Interest Rates and Inflation

The most frequently offered explanation of changes in interest rates highlights the causal role of inflation. The rate of interest received by lenders and paid by borrowers — called the *nominal* rate — may be thought of as consisting of two components, the *real* rate and an *inflation premium*. One form of the explanation runs as follows: Lenders wish both to preserve the *real* value of the funds they have lent *and* to achieve a *real* return on those funds. On the other side of the transaction, borrowers are willing to pay a higher rate of interest if they believe that the rate of inflation is going to rise. Under such circumstances, borrowers correctly reason that they are going to pay off their indebtedness with "cheaper" dollars.

Such considerations lead us to expect to observe a relationship between the rate of inflation and the level of interest rates. Unfortunately, we are often led astray. There is not a stable relationship between *measured* inflation and observed, or nominal, interest rates. In fact, during the early 1970s the measured rate of inflation was greater than the level of interest rates. And, in the past several years interest rates have remained well above measured rates of inflation.

Does all this mean that the theory is hopelessly wrong-headed and that we must look elsewhere — to the Federal Reserve, for example — to explain high interest rates? I don't think so. But it is important to articulate the theory correctly. For, after all, the theory is laid out in terms of *expected* inflation not *measured* inflation. It is possible for *measured* inflation to rise rapidly, but for the public to view such developments as temporary. Similarly, it is possible for *measured* inflation to fall, but for the public to maintain the belief that prices will accelerate upward again. With this in mind, it is easy to explain the peculiarities of the past decade. During the part of the '70s when *measured* inflation exceeded interest rates *expected* inflation had not yet fully adjusted upward. And, in the past several years when interest rates have exceeded *measured* inflation, *expected* inflation has remained high. That is, the public has failed to be impressed by declines in the measured rate of inflation.

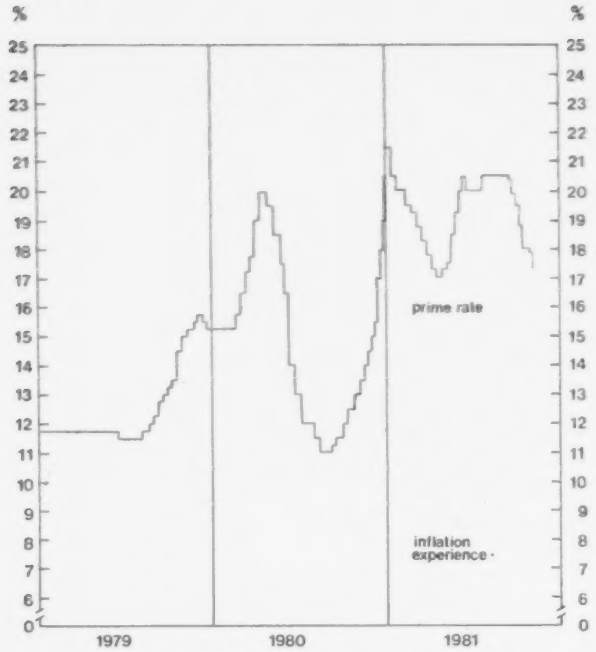
But if this explanation of the apparent failure of theory is easy, it is also too easy. It suggests that we have a theory that is always true in retrospect, but gives little guidance regarding the future. In practice, the burden for those attempting to use the theory is to predict changes in the expected rate of inflation.

It is plausible to believe that expectations regarding future inflation are based substantially upon experience with actual inflation. But experience consists of an ac-

Population Growth and Decline in the Midwest *By Curtis C. Roseman* / *Page 5*

S&Ls and the Financial Reform Act *By Timothy J. Gallagher* / *Page 9*

Chart 1



* Annual rate over preceding six months.

cumulation, memory, and interpretation of events. Experience does not consist merely of the last thing that happened; nor is it a simple average of the past. Even so, in an effort to bring some measurement to bear on the problem, suppose we regard successive average rates of increase in consumer prices during preceding half-years as an approximate summary of experience. On this basis, what does experience tell us?

Two conclusions emerge from an examination of Chart 1. First, experience, as defined, suggests that the rate of inflation has moderated substantially from the pace reached in the first half of 1980 and has drifted moderately lower since early 1981. Second, the gap between interest rates (as summarized by the prime rate) and average inflation widened in 1980 and throughout much of 1981. This set of developments provides the basis for the explanation of recent interest-rate declines and lays the groundwork for the belief that there is a reasonable chance for a further meaningful fall.

The Recent Interest Rate Decline

Recent declines in interest rates reflect an adjustment of the expected rate of inflation to an accumulation of experience. For more than a year, average rates of inflation have moved within a fairly narrow band centered just above 10 percent. If the anticipated rate of inflation — the inflation premium — had been 10–12 percent during this period, nominal rates of interest should have been 13–15 percent.

According to this view, interest rates have been "too high." That is, they have been above the level implied by experience as measured in Chart 1. Shifting away from our focus on expectations, interest rates have been too high in another sense. They have been high relative to the prospective returns envisaged by those making decisions crucial to the course of the economy.

In this context it may be useful to sketch an explanation of interest-rate changes in terms of "position-making." Consumers may be regarded as position-making as they strive to maintain their standard of living. Retail stores are position-making when they maintain their inventories, their accustomed advertising, their level of service, and so forth. Producers are position-making when they maintain production, hold onto their employees, and continue planning for expansion or improvement. Financial institutions may be thought of as position-making when they maintain their lending and investing and otherwise continue their efforts to attract depositors and borrowers. Interest-rate costs are an important element in all of these position-making activities. As long as the participants in the economic process believe that returns justify the costs, positions can be maintained or expanded. But when expected returns are inadequate, economic positions are permitted to deteriorate. Indeed, much of the experience of the economy since early 1979 has involved bare maintenance and deterioration.

Chart 2

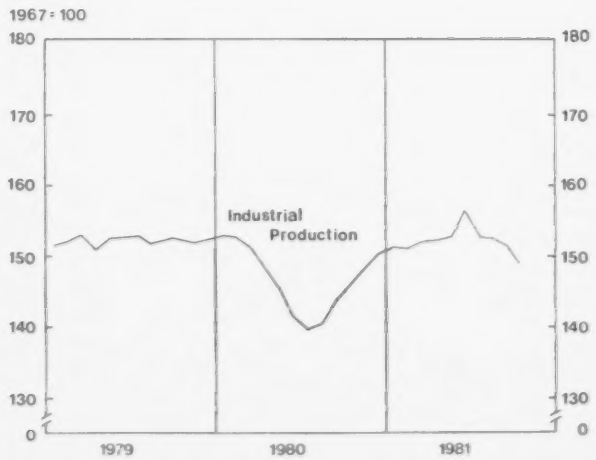


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Chart 3

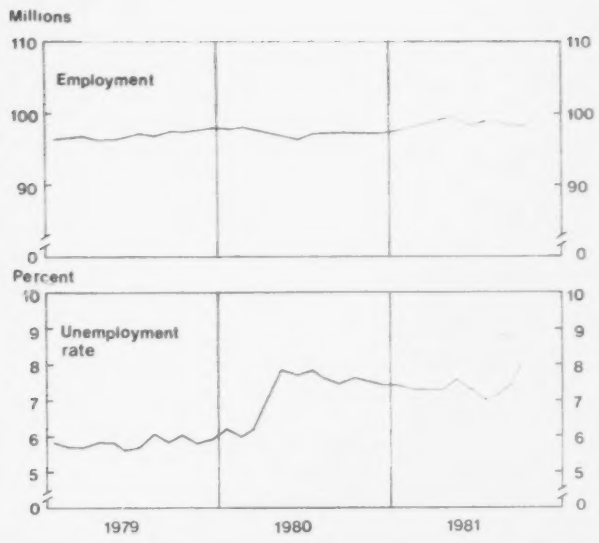
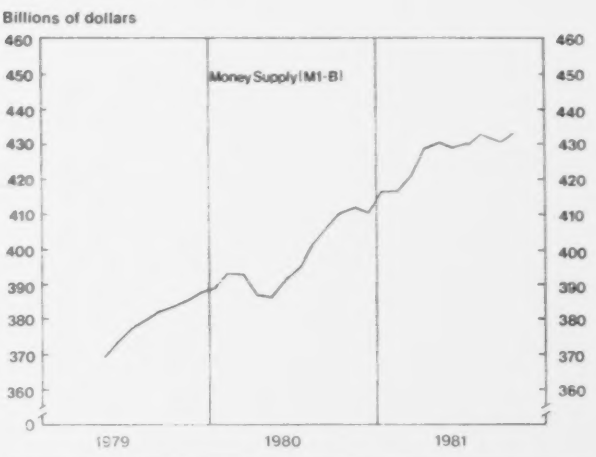


Chart 4



Hence, whether the interest-rate story is articulated in terms of inflationary expectations or in terms of developments in the underlying economy, an interest-rate decline has been in order. The major advantage of viewing the matter in terms of the role of an inflation premium is in the potential for generating a specific forecast. As indicated, with no further change in inflationary expectations, it is reasonable to expect interest rates to cluster within the 13–15 percent range. At this writing, some short-term interest rates have already moved below this range. But without a sustained adjustment in the inflation premium, interest rates are not likely to remain below 10 percent for a prolonged period.

Further Interest Rate Declines

Prospects for future interest-rate declines depend upon what happens to expectations regarding inflation. In turn, as previously argued, inflationary expectations are related to experience with measured inflation. It is my view that there is a reasonable chance for measured inflation to decline. This chance is based largely on economic adversity, with accompanying social costs. Moreover, as we have learned throughout the past decade, there is no assurance that economic deterioration will be accompanied by a slowing in the rate of inflation.

Economic activity has not expanded significantly for nearly three years. Since the first quarter of 1979, real GNP — that is, gross national product adjusted for inflation — has risen barely 2 percent. Industrial output has not risen at all on balance since early 1979 (see Chart 2); it has barely regained the pace reached prior to a sharp, but brief, downturn in 1980. Employment growth has slowed sharply since early 1979, and unemployment has risen (see Chart 3). In short, setting aside the probability of current recession, the fact is that the economy carries a legacy of protracted weakness.

The policy response to the economic malaise probably has an important bearing on future economic activity. The administration has made it clear that it will not support a "quick fix." Federal Reserve spokesmen take every opportunity to express their determination to resist excessive monetary expansion. Certainly, monetary developments of the past several months have been restrictive. The money supply has not expanded since last spring (see Chart 4). If recent administration posturing is realized in terms of policy measures, it is reasonable to believe that the economic weakness of the past several years will persist into the indefinite future.

Suppose the hopes and beliefs embodied in supply-side economics are well founded. Suppose that the fondest wishes of the administration come to fruition. Given the best of all possible worlds, a considerable period of time — perhaps several years — would be required to achieve an expansive, noninflationary economy. In the meantime, however, there is a good chance that there will be a few healthy developments. In particular, the economy is positioned to experience a marked decline in measured inflation.

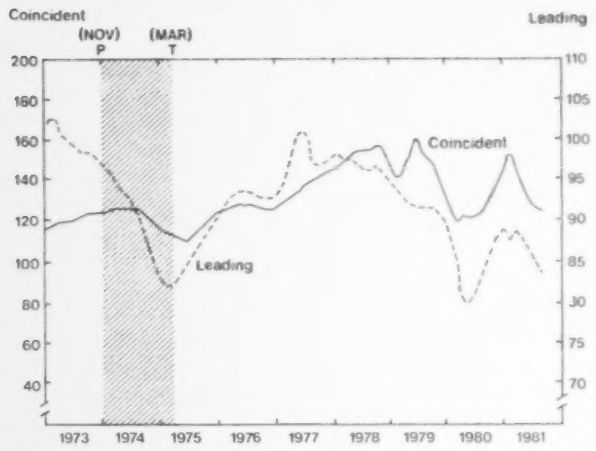
The decline in measured inflation, if it materializes, will have been based, in part, on a series of pricing decisions taken in light of the seriously weakened economy. Another portion of the prospective moderation in inflation rates will reflect the decline in interest rates that has already occurred. And, if there is only a modest backing off in mortgage interest rates, and this is a big "if," the effect on the consumer price index can be substantial.

In turn, as argued above, a marked and sustained reduction in *measured* inflation is likely, at length, to result in a corresponding reduction in *expected* inflation. If this occurs, interest rates will drift lower. For example, a decline in the inflation premium to the 6–8 percent range will pull the general level of interest rates to the 9–11 percent range.

In the spirit of being precisely wrong rather than vaguely correct, let me be more specific. The prime rate

(continued on p. 12)

Leading Economic Indicators



Note: P and *T* designate peaks and troughs of the business cycle for the US as defined by the National Bureau of Economic Research.

Bureau of Economic and Business Research

The most recent evidence on the status of commercial activity in Illinois indicates that the economy has fallen under the weather. Although the presence of the illness is clear, the proper remedy is less obvious. So, barring the immediate application of a panacea, the indicators seem to be telling us that the economy will continue to exhibit weakness over the next few months.

The leading indicator continued to slide in September due to seasonally adjusted declines in all of its components. The 25 percent decline in building permits was particularly sharp, but not surprising given interest-rate levels. The coincident indicator dropped less dramatically, the primary culprit being a drop in seasonally adjusted, real weekly earnings in the manufacturing sector.

Illinois Business Indexes

Item	September 1981	August 1981	July 1981	June 1981	September 1980
Leading indicator (1969=100)	83.5	84.7	85.7	86.7	85.9
Coincident indicator (1969=100)	125.1	125.5	127.0	128.0	125.2
Employment-manufacturing (in thousands)	1188.7	1184.1	1184.3	1195.8	1210.4
Average weekly hours-manufacturing	39.9	40.0	39.7	40.2	39.9
Weekly earnings-manufacturing	$ 365.09	$ 363.60	$ 359.68	$ 362.70	$ 330.77
Layoff rate-Chicago	0.8	0.8	0.8	0.9	1.0
Help wanted advertising-Chicago (1967=100)[1]	61.0	67.0	68.0	68.0	71.0
Help wanted advertising-St. Louis (1967=100)[1]	52.0	50.0	50.0	51.0	59.0
Ordinary life insurance sales (in millions)	$ 1,780	$ 1,660	$ 1,806	$ 1,898	$ 1,519
Retail sales (in millions)[2]	$ 4,186.5	$ 4,208	$ 4,201	$ 4,278	$ 3,803
Coal production (in thousands)	5,587	5,516	4,388	2,999	5,327
Petroleum production (in thousands)	1,980	2,050	2,089	1,967	1,868
Vendor performance, seasonally adjusted (percent)	44.7	49.6	46.7	45.7	39.0
Building permits (in thousands)					
Residential housing units	.97	1.32	1.32	1.35	3.25
Value of residential housing	$47,537	$60,076	$63,576	$67,319	$136,291
Value of nonresidential construction					
Industrial buildings	$19,027	$46,188	$115,619	$23,937	$25,582
Office, banks and professional buildings	$57,174	$38,565	$40,309	$52,803	$30,354
Stores and other mercantile buildings	$11,491	$12,156	$11,661	$12,574	$17,893
Other	$22,436	$25,623	$40,710	$80,488	$34,720
Consumer price index					
North Central US	-	149.3	-	146.9	-
North Central/population more than 400,000	-	152.3	-	150.0	-
North Central/population 385,000 to 1,250,000	-	148.1	-	146.6	-
North Central/population 75,000 to 385,000	-	145.4	-	142.3	-
North Central/population less than 75,000	-	145.3	-	143.1	-
Chicago	276.9	275.8	272.7	269.1	250.1
St. Louis	273.4	-	269.4	-	252.4
Prices received by farmers	117.0	125.0	131.0	130.0	133.0
	1981:I	1980:IV	1980:III	1980:II	1980:I
Personal income (in millions)	$128,645	$125,688	$123,234	$119,008	$116,227

[1]The Conference Board, *Help Wanted Advertising*, September 1981. [2]Most recent month projected by BEBR.

Population Growth and Decline In the Midwest

CURTIS C. ROSEMAN

The decade of the '70s was one in which the population of the United States underwent some rather dramatic changes: continued lowered birth rates yielded fewer young people in the population; further aging of the population resulted in important increases in the elderly population; changing household composition and lowered average household size resulted in a rapid increase in demand for housing units; and increasing numbers of immigrants came from new origins (such as Southeast Asia) as a result of changes in immigration policy in the '60s and the acceptance of political refugees in the '70s. In addition to these changes, two of the more important population dynamics to affect Illinois and the Midwest pertain to the distribution of population. First, the population movement from the "frostbelt" to the "sunbelt," which affected Midwest population growth in the '60s, matured and broadened in the '70s. Secondly, a new pattern of settlement emerged — a greater percentage population growth occurred in nonmetropolitan places than in metropolitan places. For the first time in memory, the migration stream from metropolitan to nonmetropolitan areas exceeded the stream toward metropolitan areas.

This paper will focus on these and related population-redistribution patterns and the processes underlying them. Data from the 1980 US census of population will be presented in order to document patterns of population growth and decline in the Midwest.

National Population Redistribution

The principal mechanism by which population is redistributed within the United States is migration, rather than differential birth and death rates from place to place. Two important changes in long-standing migration patterns occurred in the '70s [7 and 8]. First was the "sunbelt" movement. Whereas in the '40s, '50s, and '60s migration tended to focus on Florida and southern California, today there is widespread growth through migration of broad areas of the South and West, including the entire West Coast, most of the interior West, most of east Texas, the Arkansas Ozarks, and most of the Appalachian region.

The other change was more dramatic but not unrelated to the sunbelt movement. Since about 1970, and for the first time in our history, more persons have been moving toward nonmetropolitan areas than toward metropolitan areas. This has been referred to as the "rural renaissance" because of the unprecedented growth of numerous rural areas including a wide variety of places in the Midwest and Northeast, such as northern Wisconsin and Michigan and northern New England. An important part of the nonmetropolitan growth, in both the frostbelt and the sunbelt, occurred in "exurban" areas near metropolitan areas. In general, nonmetropolitan areas with climatic, scenic, or recreational amenities and/or those near metropolitan areas are now growing most rapidly, whether or not they are located in the sunbelt. On the other hand, many metropolitan areas, especially the largest ones, are losing population, both to nonmetropolitan areas and to smaller metropolitan areas. In fact, many of the largest metropolitan areas were losing population through migration in the '60s, but it was not until the '70s when the birth rates reached low enough levels that they experienced an overall loss of population. Between 1970 and 1980, eight of the largest twenty SMSAs in the US lost population (including Detroit, St. Louis, and Cleveland in the Midwest), and an additional five grew by less than 5 percent (including Chicago) [14].

Neither of these general trends, the sunbelt migration and the nonmetropolitan migration, is a one-way stream. For every ten persons moving to the sunbelt (the states in the West and South census regions), six are moving to the frostbelt (the Midwest and Northeast) [13]. For every ten persons moving toward nonmetropolitan areas, eight are moving toward metropolitan areas. Hence, the net patterns are clear, but individual migrants are moving against each trend in important numbers.

Underlying Processes

Reasons for the two population-redistribution trends of the '70s are interrelated. (More detailed discussions of the reasons can be found in [5, 7, and 8]). First there has been a dispersal of jobs toward the sunbelt, largely due to more job creations there than in the frostbelt. Relatively more jobs are also present in nonmetropolitan America — in the Midwest, for example, 20 percent of the manufacturing jobs were in nonmetropolitan areas in 1947, a figure which is now approaching 30 percent [4]. Not only are jobs dispersing geographically in particular sectors, such as manufacturing, but the overall structure of employment is changing. The primary and secondary sectors are declining relatively, while the tertiary sector has been expanding. So too have the government and quaternary sectors which, along with the tertiary, tend to be geographically dispersed through the country. Since much migration is employment related, these gradual changes in the structure of employment have contributed to the dispersal of the population, both toward the sunbelt and toward nonmetropolitan areas.

Another major factor relates to the ability to move and the residential preferences of the population. In general there are now more people who are free to move, as the proportion of the population supported by "non-earnings income" (including welfare, social security, rent, and dividends) has risen from 18 percent in 1950 to over 30 percent today [2]. This category includes increasing

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numbers of elderly and, in general, comprises a set of people who are not tied to a particular work location. Added to this factor are the preferences for living in small towns and rural areas held by a large segment of the population [3]. Metropolitan environments, including many suburban areas, are perceived by many as beset with fiscal, crime, and quality-of-life problems, whereas small towns, rural areas, and amenity areas are seen as insulated from these problems. In the '70s more and more people were apparently able to convert these somewhat idealistic preferences into actual residential moves.

The preference surveys from which these conclusions are derived also show that the majority of persons with small town and rural preferences would also like to be near (but not in) a metropolitan area. Consequently, a very important amount (probably over 60 percent) of the nonmetropolitan growth in the '70s occurred in places which are near, and often within commuting distance of, the fringes of metropolitan areas. Growth of these exurban places has been made possible in part by the suburbanization of jobs to the metropolitan fringe during the '60s and '70s.

In addition to the dispersal of jobs, the increased freedom to move, and changing preferences, the '70s represents a time during which more and more metropolitan people have established ties with nonmetropolitan places; and more northerners have become tied to sunbelt places. Such ties crystalize through a variety of processes. Some people have "roots" in nonmetropolitan and/or sunbelt places — including for instance, many blacks in Chicago who grew up or whose parents grew up in Mississippi; and many whites in Chicago who grew up in midwestern rural areas. Other people have become attached to rural and/or sunbelt places through vacation experience, often in the form of a two-week vacation repeated year after year. Still others have become attached to places through friends and relatives, military or college experiences, or other travel experiences.

It is reasonable to suggest therefore that to the majority of people residing in midwestern metropolises, "sunbelt" or "rural" are not abstract or mysterious concepts — they refer to specific places to which social, psychological, or even economic (such as property ownership) attachments have already been solidified. The existence of these ties explains the growth of many places. For instance, the growth of northern Wisconsin/Minnesota and northern Lower Michigan is significantly related to the inmigration of people to the only rural place they know about, the place where they have established ties.

Midwest Population Growth in a National Context

Partly as a result of the sunbelt population movement, both the West North Central (that part of the Midwest which is west of the Mississippi River) and East North Central Census Divisions grew in population at rates considerably less than the nation as a whole during the '70s (Table 1). The sunbelt/frostbelt differential in population growth can be clearly seen — each census division in the West and South grew at rates greater than the national level, and each of those in the North Central and Northeast grew at lesser rates. At the extreme, the Mid-Atlantic Division, which encompasses numerous very large metropolitan areas, has been losing population. After the 1981 reapportionment of the US House of Representatives, the South and West regions will, for the first time in history, have more representatives than the Midwest and Northeast.

The sunbelt movement is not, however, a simple displacement of people en masse from cold places to warmer and/or drier climates. Examination of migration streams between the Midwest and each of the other three regions reveals a more complex pattern of change between the '50s and the '70s. (Data for this analysis come from the 1955–60, 1965–70 and 1975–79 estimates of migration made by the Census Bureau. Although the latest period is one year shorter, and therefore not exactly comparable, it is possible to make general comparisons between the three decades using these data.)

Gradually over the last three decades the Midwest (the North Central census region) has shifted in its net exchange with other regions. Net migration figures (Table 2) indicate that the region has been receiving an increasing volume of migrants from the Northeast during the study period, although in relatively modest numbers. The North Central region has lost much greater numbers to the other two regions (the sunbelt). The largest net loss was to the West in the 1955–60 period, but the smaller net losses to that region in the latter two time periods corresponded with steady increases in the losses to the South. This is one indication of the fact that the sunbelt movement is no longer focused dominantly on a few places (such as southern California and Florida) as it was in the '50s.

Net migration data, however, provide insufficient information for the adequate examination of interregional population shifts. Any particular net migration figure is the product of two migration streams passing each other in opposite directions. Often the individual streams are

Table 1. Population Growth by Census Regions and Divisions, 1970-1980

Region/Division	1980 Population	Absolute Change	Percent Change
West	43,165,199	8,326,956	23.9
Mountain	11,368,330	3,078,429	37.1
Pacific	31,796,869	5,248,527	19.8
South	75,349,155	12,536,175	20.0
South Atlantic	36,943,139	6,264,313	20.4
East South Central	14,662,882	1,854,305	14.5
West South Central	23,743,134	4,417,057	22.9
North Central	58,853,804	2,263,510	4.0
East North Central	41,669,738	1,406,991	3.5
West North Central	17,184,066	856,519	5.2
Northeast	49,136,669	76,153	0.2
New England	12,348,493	501,248	4.2
Middle Atlantic	36,788,174	-425,095	-1.1
US Total	226,504,825	23,202,794	11.4

Source: US Bureau of the Census [14].

considerably larger than the net difference, in which case the total amount of migratory activity vastly overshadows the net result.

Thus, to investigate the major interregional distribution trends more directly, it is necessary to examine the gross flows (Table 3). With respect to the Northeast, flows in both directions in the recent period are considerably less than in the first period, indicative of a lessening of migration potential between the two regions as growth in jobs and population is much greater in the sunbelt. Nonetheless, the net gain of the Midwest from the Northeast has increased (Table 2).

The dramatic increase in net migration with respect to the South was largely the product of increases in migration *from* the Midwest (from 1,089,000 in 1955–60 to 1,454,000 in 1975–79) (Table 3), rather than any significant change in migration from the South to the North Central region. Whereas there were significant decreases in particular segments of the south-to-north streams, such as the interregional rural to urban movement of blacks, there was an overall stability in the northward stream. Much of the South to Midwest migration is now inter-urban in nature. Increases in Midwest to South migration have been much more across the board, both demographically, as the black, white, and elderly streams are increasing, and geographically, as Midwesterners are moving both to southern cities (in a variety of places) and to nonmetropolitan amenity areas such as the Arkansas Ozarks, parts of Appalachia, east Texas, and Florida.

Movement from the Midwest to the West has been relatively stable (Table 3), although the largest gross flow occurred in the fifties. In the last two decades, however, the migration stream *from* the West to the Midwest has become larger (Table 4), due probably to two factors: 1) the West has matured economically as a region since the surge of westward migration in the '70s, promoting migration exchange in both directions; and 2) many people who were part of the massive westward movement of the '50s either returned in later decades or established kinship and communications network between the two regions upon which later migrants depended in moving to the Midwest. As in the case of the movement to the South, the stream to the West is quite diversified; and a wide variety of localities throughout that region are drawing Midwestern migrants, including rural amenity areas, major cities, retirement communities, and areas experiencing energy developments — which are numerous in the West.

In summary, the most dynamic stream of interregional migration between the Midwest and other regions has been the stream from the Midwest to the South, as indicated by the percent distribution of outmigration among the regions (Table 3). Reorientation of outward migration toward the South is the major factor in the changing migration linkages between the Midwest and the remainder of the country. This reorientation is part of the sunbelt movement in general, a movement which has resulted in considerable urban and rural growth in a variety of localities throughout the South in the '70s.

Population Redistribution Within the Midwest

Intra-regional migration ("migration" being defined as residential movement across county boundaries) is an important phenomenon in the Midwest as some 1,429,000 people migrated within the region from 1975–79 [13]. Again, migration is more important than differential natural population change in determining the differential growth from place to place within the region. As a result, the examination of county-level population changes in this section will rely largely upon interpretations rooted in intra-regional migration patterns and processes.

The slow growth of the Midwestern population during the last decade can be partly attributed to the decline or very slow growth of a few large metropolitan areas relating both to lowered birth rates and continuing net outmigration. The following counties containing large central cities lost more than 50,000 population each during the decade: Wayne (Detroit), Cook (Chicago), Cuyahoga (Cleveland), St. Louis City, Milwaukee, and Hamilton (Cincinnati). The large cities of the Midwest are like those of the Northeast and many others because

Table 2. Net Migration between the Midwest and Three Other Regions, 1955-60, 1965-70, and 1975-79
Net migration in thousands

	Northeast	South	West
1955–60	+40	-123	-760
1965–70	+53	-275	-406
1975–80	+60	-463	-500

Source: Calculated from data from US Bureau of the Census [11, 12, 13].

Table 3. Outmigration From the Midwest, 1955-60, 1965-70, and 1975-79

Migrants in Thousands (percentage) From the Midwest to:

	Northeast	South	West	Total
1955-60	314 (12.3)	1089 (42.8)	1142 (44.9)	2545 (100.0)
1965-70	395 (14.9)	1282 (48.2)	932 (36.9)	2661 (100.0)
1975-79	244 (8.9)	1454 (53.1)	1039 (38.0)	2737 (100.0)

Source: Calculated from data from the US Bureau of the Census [11, 12, 13]

Table 4. Immigration to the Midwest, 1955-60, 1965-70, and 1975-79

Migrants in Thousands (percentage) to the Midwest from:

	Northeast	South	West	Total
1955-60	354 (20.8)	966 (56.8)	382 (22.4)	1702 (100.0)
1965-70	450 (22.1)	1007 (49.5)	576 (28.3)	2033 (100.0)
1975-79	304 (16.6)	991 (54.0)	539 (29.4)	1834 (100.0)

Source: Calculated from data from the US Bureau of the Census [11, 12, 13]

they continue to expand outward to suburban and exurban territory, tend to lose population to smaller metropolitan areas, and are suppliers of migrants to nonmetropolitan amenity areas.

Although not as important in terms of absolute population losses, a number of counties in the heavily agricultural states of Iowa, Kansas, Nebraska, South Dakota, and North Dakota lost relatively large percentages of their populations. But only 46 lost more than 10 percent in the '70s compared with 174 in the '60s in those states. Elsewhere in the Midwest, large percentage losers were almost nonexistent in the '70s (only six lost more than 10 percent in 1970–80).

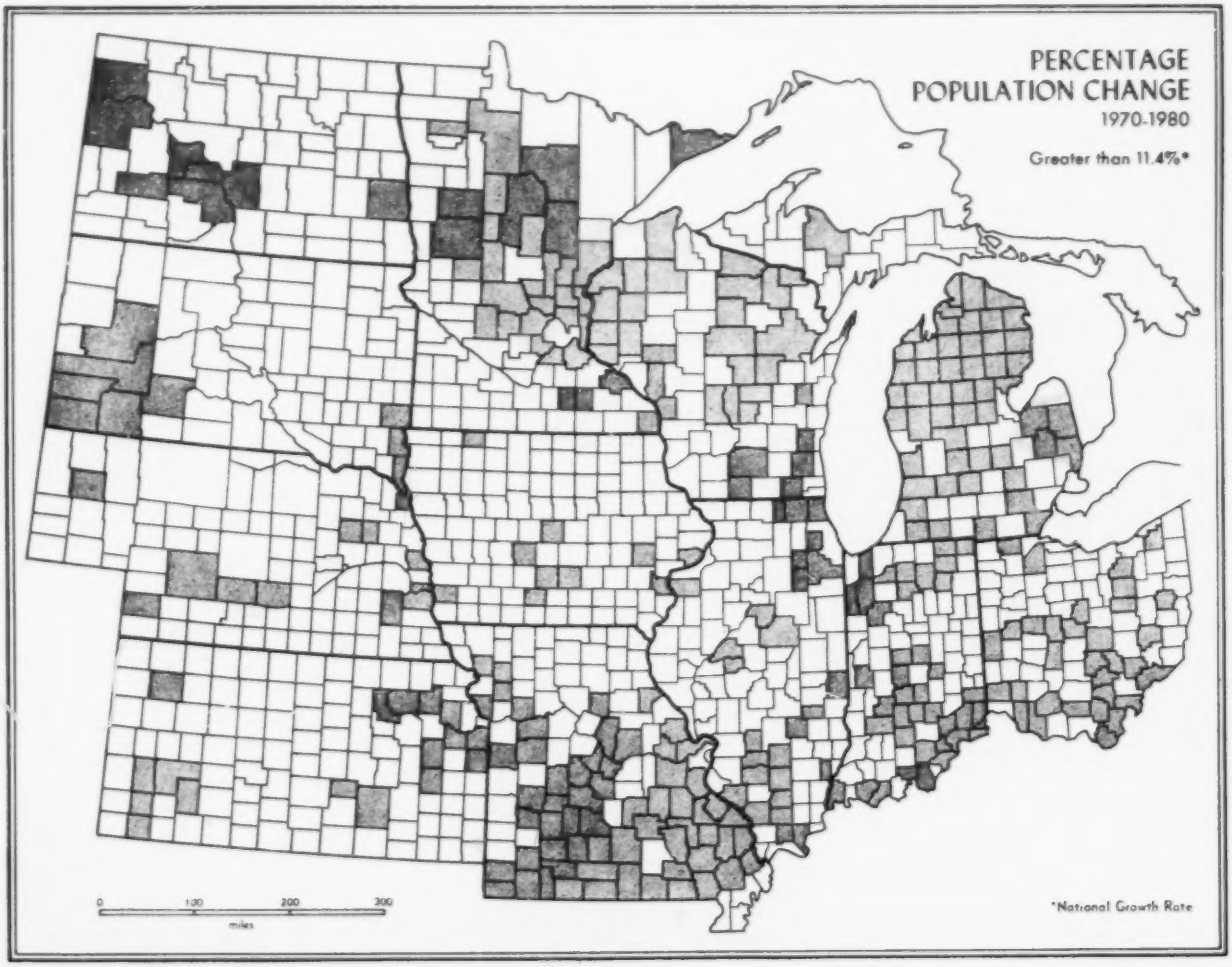
Growing counties were much more numerous. It has been observed that during the '70s there is a paradox in Midwestern growth patterns: while the region as a whole was growing at the lowest rate in several decades, the number of counties which were experiencing growth increased over previous decades [1]. Thus, the pattern of growth has spread spatially across the region. This is illustrated by the number and location of counties growing at a rate greater than the national average, 11.4 percent (see the map).

The pattern of suburban and exurban growth is evident, as counties surrounding major metropolitan areas such as Minneapolis/St. Paul, Kansas City, St. Louis, Milwaukee/Chicago, Indianapolis, Detroit, Cincinnati/Dayton, and Cleveland exceed the national growth rate. A significant amount of the nonmetropolitan growth in the Midwest, as in the nation as a whole, is concentrated in such areas.

There are, however, very important growth areas beyond the exurban realm. Major recreation/amenity areas have developed to include most of northern Lower Michigan, much of northern Wisconsin and Minnesota (merging with exurban growth from Minneapolis/St. Paul), and most of the southern Missouri Ozarks.

Sources of migrants to these areas tend to match previous vacation patterns [10]. The flow to the Michigan area was dominantly from Detroit in the '70s and much of the flow to the Minnesota/Wisconsin area was from Chicago, Milwaukee or the Twin Cities. Interviews with recent migrants revealed that previous ties to these amenity areas, commonly through vacation experiences, were found to be influencial in migration decisions. The population growth of these areas, as well as other major amenity areas around the country, is at least partly a

(continued on p. 11)



S&Ls and the Financial Reform Act

TIMOTHY J. GALLAGHER

The savings and loan (S&L) industry has some much publicized troubles. The failure and liquidation of Economy Savings and Loan of Chicago was a national story because it has been almost a decade since an S&L was liquidated. The 1980 Financial Reform Act (see *Illinois Business Review*, October 1980) is supposed to aid S&Ls and other thrift institutions by allowing greater diversity in their assets and liabilities. This article examines some of the expected impacts of this act on the S&L industry as well as some of the changes sought by S&L officials but not yet implemented by legislative or regulatory action.

S&L Industry Background

It used to be an industry joke that the depositors of savings and loan associations were mainly little old ladies in sneakers. They had the funds to deposit and were willing to walk a little to get the extra ¼ of 1 percent that S&Ls pay on regular savings accounts. The Regulation Q interest-rate ceilings have long given S&Ls this edge over commercial banks in the battle to attract depositors. Savings and loan associations have various types of savings deposits as their main liabilities, with mortgages as their main asset.

Over the years there has been a major shift away from regular passbook savings accounts to large denomination 6-month and 30-month certificates of deposit. Funds which used to cost S&Ls only 5¼ percent are now costing more than two or three times as much. But the average return on assets has seriously lagged behind the rapidly rising interest costs on deposits. Throughout the nation many long-term mortgages with low, fixed interest rates are still being carried on the books of savings and loan associations.

A classic profit squeeze has been the result. That is, rapidly rising costs have been coupled with slowly rising revenues. In addition to this profit squeeze, there has been a serious disintermediation problem, largely the result of competition from money market funds. The high yields and liquidity offered by these funds has proven to be an effective lure to savers. Also, the lower minimum denominations required of short-term savers, usually $1,000 versus $10,000 at S&Ls, and the absence of "early withdrawal" penalties have proven to be very attractive features. Since many money market funds also offer checkwriting privileges, many S&L officials have been crying "foul."

The Act's Provisions Affecting S&Ls

The Depository Institutions Reregulation and Monetary Control Act of 1980 (the full name of the 1980 Financial Reform Act) was intended in large measure to give a range of financial institutions increased flexibility and put them on a more equal footing. Indeed, over the years, financial institutions have been getting more and more alike. The Financial Reform Act has provided a national legislative framework for what has been evolving slowly in various parts of the country.

It used to be that the existence of checking-account liabilities was both a necessary and sufficient criterion to distinguish commercial banks from other financial institutions. The Financial Reform Act now authorizes nationwide negotiable order of withdrawal (NOW) accounts. These accounts first appeared in New England with the approval of state regulators and legislators.

The two changes implemented by the act which are of greatest interest to S&L officials are the elimination of deposit interest rate ceilings (to be phased out over six years) and the expansion of S&L (and other nonbank financial institutions) lending activities. The greater flexibility allowed on the asset side of S&L balance sheets is designed to offset the loss of the ¼ point interest rate advantage — as indicated, long enjoyed by S&Ls in the battle for regular savings account customers.

Many S&L officials believe they have given up a great deal for little in return. In the first place, having access to checking account (NOW account) funds is not such a great gain. Because these accounts are very costly to administer there is little margin for profit.

On the asset side, the newly allowable activities do not include the lucrative business loans which commercial banks have found to be so profitable. S&L officials salivate at the thought of getting a piece of this action. That day is not yet here. The credit card and trust business now allowed by the Financial Reform Act are little consolation for the loss of the competitive edge in the regular savings business as many people see it.

Current S&L Problems

It has been widely reported that many S&Ls are in financial trouble. Many failures are predicted unless the Federal Home Loan Bank Board (which oversees the savings and loan industry) takes swift action to help these ailing institutions. The word "bailout" is a dirty one among FHLB officials. They want to protect depositors without appearing to encourage inefficiency by preventing a privately owned firm from failing.

The Federal Savings and Loan Insurance Corporation (FSLIC), which is managed by the Federal Home Loan Bank Board, has primary responsibility for aiding these troubled S&Ls. The *Wall Street Journal* has reported (12 June 1981) some regular institutional buyers of S&L certificates of deposit are going elsewhere with their funds for awhile. The troubles of the industry have scared some of them away. The small saver (insured to $100,000) does not seem too concerned, and for good reason. It is unthinkable that Congress would fail to

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fund FSLIC with whatever is necessary to cover insured deposits. The fund is quite lean, however, considering the potential claims against it. The potential drain on the Treasury is considerable. If only a few of the larger troubled S&Ls go under, FSLIC reserves could be depleted. When the coverage offered by FSLIC was raised from $40,000 to $100,000 per depositor, little was done to bolster the fund's reserves. Promises are cheap. If these reserves are depleted because of the claims made against the fund, it will be the Treasury (taxpayers) left holding the bag.

Possible Solutions

Obviously something needs to be done before FSLIC has to begin paying out large claims to depositors. Many S&L officials have been calling for the easy fix, such as placing severe restrictions on money market funds with whom competition has been fierce. The growth of these funds has been astronomical, much of it at the expense of S&Ls. Assets in money market funds recently reached $120 billion according to the Investment Company Institute.

The latest Congressional action designed to help the savings and loan industry authorizes S&Ls (and other thrift institutions) to offer something called the All Savers Certificate. These certificates offer savers 70 percent of the one-year Treasury bill interest rate. Up to $1,000 of that interest ($2,000 on a joint income tax return) will be tax–free.

Commercial banks are also allowed to offer these certificates. The key point, however, is that money market funds are likely to be the big losers under this plan. The interest paid by these funds will continue to be fully taxable by the federal government. Hence, depository institutions offering the All Savers Certificates have a major new weapon to use in the competitive battles for the savings marketplace.

The problem with these certificates is that little new savings will be forthcoming (although this was the chief argument made in favor of this legislation by proponents). The following analogy should help illustrate what this proposed legislation will do. Pretend the Illinois legislature passed a law which authorized all Italian restaurant owners to give to their customers a $10 income tax credit voucher with the purchase of any meal. Anytime you had dinner at an Italian restaurant in Illinois you would reduce your tax liability by $10. Owners of Italian restaurants would love this legislation as would those citizens of the state with a taste for Italian food. What about the state as a whole, however? Chinese, French, and in fact all non-Italian restaurants would tend to lose business because they are not privileged with this special treatment. The chief result would be the loss of tax revenues to the state.

This is similar to what the All Savers Certificate will do. The privileged depository institutions will gain on their competition (primarily money market funds) while the US Treasury loses billions of dollars in tax revenues. How do you suppose that will be made up?

There has been a proposal to keep the S&Ls ¼-point interest advantage in place and, perhaps, even expand it. Such an action would help the S&Ls in their competitive battle with those "full service" commercial banks.

These proposals, and others which seek to limit the competition, miss the point, I believe. If the ground rules S&Ls and their competitors operated under were more equitable, these proposed restrictions would not be necessary. This suggests that the Financial Reform Act has not in fact reformed things nearly enough.

If savings and loan associations were allowed to expand more in the lucrative business loan and personal loan areas they would be able to face the competition head-on. Once the shackles have been removed from all parties, it would not be necessary to ask big brother to hold the bully's hands behind his back. Mortgage lending need not suffer either. Innovations such as variable-rate mortgages can continue to make mortgages an attractive investment.

With the asset side of the balance sheet liberated, the battle on the liability side against money market funds can be fought without any interest-rate ceilings. Restrictions on money market funds will not be needed either. Innovations such as repurchase agreements (repos) actually have many money market fund officials worried. These repurchase agreements are basically loans made to the financial institution which are secured by a portfolio of US government or agency securities (*Wall Street Journal,* 22 June 1981). Financial institutions can take in funds from investors and offer rates very competitive with those paid by money market funds. There is usually no early withdrawal penalty either, a very weak point of the traditional certificate of deposit. These repos are not deposits and are not insured, however. Worried money market fund officials would like this latter fact to be emphasized more.

Conclusions

The Depository Institutions Deregulation and Monetary Control Act of 1980 has made some important changes affecting savings and loan associations and other financial institutions. More changes are needed, however, to put the savings and loan industry on an equal basis with its competition. Only when this industry is allowed to attack its current problems utilizing its own skills will economic efficiency be furthered for all of us. Let us free the S&Ls, not shackle their competition.

(continued from p. 8)

result of the large number of people who had vacationed there previously. Projecting, the vacation ties of today are helping to shape migration patterns of tomorrow in many nonmetropolitan areas in the United States. In both of these northern regions a few return migrants were also contributing to the recent growth.

In the Missouri Ozarks, similar processes have contributed to growth. Interviews with recent migrants [10] showed that they originated in a variety of places and typically had previous vacation experience in the Ozarks. Source cities included Kansas City, St. Louis, Chicago, and a variety of other places widely spread throughout the United States. Some migrants came from as far as the West Coast, most of whom had previously lived in Missouri and, therefore, were return migrants. As an amenity area, then, the Missouri Ozarks region has a broader appeal, owing partly to its more central and accessible location within the country, and partly to a previous history of outmigration to a variety of locations including the West Coast.

Environmentally similar, although smaller, nonmetropolitan areas in the Midwest experienced new growth in the '70s, too. Parts of southern Indiana and Ohio are developing amentity areas, as are isolated other counties, such as those in northeastern Indiana and Dickinson county in northwestern Iowa (see the map). These and other small amenity areas are typically dotted with lakes and recreation facilities and probably have drawn vacationers from nearby cities for decades. They are now drawing migrants who are following their own previous vacation paths.

A few additional places are prominent on the map of high-growth-rate counties (see the map). They encompass medium-sized cities in all parts of the Midwest, including such places as Sioux Falls, Wichita, Lincoln, Des Moines, Fort Wayne, Madison, and Lansing. Their growth is partly attributable to the fact that, at this smaller urban scale, suburban growth is contained within one county, counterbalancing inner-city population declines. Nonetheless, many of these metropolitan centers are growing in numbers of jobs and population partly at the expense of the larger ones. Some are also seats of major universities and/or state capitals, exemplifying the importance of nonlocal government activities as a catalyst to growth in the '70s [9].

Conclusion

Although projections of growth rates for the Midwest through the year 2000 vary depending upon assumptions about interstate migration [6], it is clear that continued slowing of growth will characterize the population of the region as well as the nation as a whole. In the 1980s the population growth of the Midwest will lag behind that of the nation, a reflection of the general interregional shifts toward the sunbelt of both economic activities and people — a trend which is not likely to reverse itself in the foreseeable future.

Apart from the lower rates of overall population growth, however, the trends in the Midwest population distribution generally reflect those of the nation. This is because the Midwest is sharing in the migration events which have led to significant geographic areas of population growth. On the fringes of and surrounding virtually every metropolitan area in the region is significant exurban growth. The exurban movement, rooted deeply in tastes and preferences of the middle and upper-middle classes for living in small town and/or bucolic environments, is not likely to be halted in the '80s, unless major energy shortages severely constrain automobile commuting.

The Midwest, too, possesses established growing amentiy areas, the Missouri Ozarks and northern Lower Michigan, plus emerging amenity areas in northern Wisconsin/Minnesota, and southern Ohio, Indiana, and Illinois. Just as growing job opportunities in the sunbelt plus the ties of many Midwesterners to sunbelt places (especially in the South) will draw many Midwesterners outside of the region, ties of midwestern metropolitan residents to these amenity areas will keep many people within the region. At the same time some places are experiencing major population declines within the region, including a steadily diminishing number of agriculturally dependent counties in the western parts of the region, and a few counties containing large central cities.

To a large extent, therefore, the Midwest is a microcosm of the United States as a whole in terms of fundamental population trends and impacts. Internal variations in the geographic patterns of growth and decline are substantial. Therefore, while the region as a whole will continue to grow slowly in population, many areas within the region will encounter the variety of problems which accompany rapid growth or decline.

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(continued from p. 3)

of interest will fall into the 9–11 percent range before midsummer. Yields of short-term Treasury bills and, hence, on money market instruments available to many households will, at times, go even lower.

Rates of interest on conventional residential mortgages and on consumer credit will not decline in line with the fall in the general level of interest rates. Mortgage lenders have been too badly burned over the past decade to make rapid adjustments in fixed rates extending for 20 to 30 years. It is probable, however, that interest rates on short-term (3- to 5-year), "balloon" mortgages will move downward and that the maturity of such "creative financing" techniques will edge outward. Interest rates attached to credit-card borrowing and charge accounts will not decline unless there are pronounced and prolonged reductions in such borrowing. As long as consumers are willing to pay 18 percent, they will be permitted to do so.

Concluding Remarks

The forecast presented here argues that the general level of interest rates will move to the 13–15 percent range, even without a decline in expected inflation. However, with a decline of expected inflation into the 6–8 percent range, interest rates will drift into the 9–11 percent range.

Suppose the forecast is correct. We would expect measured rates of inflation to remain near the 6–8 percent range for a protracted period of time — say, six months. But this would probably include several months well above and well below this range. Also, it is important to recognize that interest rates fluctuate; they move above and below what economists might regard as their equilibrium level. I know of no forecaster who can consistently anticipate these short-run interest-rate movements. So be patient in relating results to the forecast. However, if it becomes clear that the shoe doesn't fit, throw it away!

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A Weak Economy and a Long Wait

WILLIAM R. BRYAN

The economy is in recession as evidenced by statistics relating to output, employment/unemployment, and spending. Partially in response to the weakening demand, the rate of inflation has slowed. Interest rates are also substantially below levels reached in summer 1981; but they have moved upward over the past two months.

In contrast to other periods of acknowledged recession over the past several decades, this time economic policy-makers have shown little disposition to alter their approach. The administration has continued to focus on the long-term improvement in productivity that it hopes will result from its so-called "supply side" policies. Congress, mesmerized by the burgeoning federal deficit, is more in the mood to increase taxes than to expand the budget. Meanwhile, the Federal Reserve System remains intent on maintaining a moderate growth in monetary aggregates, even if interest rates move markedly higher.

Economic Weakness

Total real output — gross national product (GNP) adjusted for price-level changes — has declined at a 5.2 percent annual rate since third quarter, 1981; industrial output, a somewhat more limited view of the economy, has fallen at nearly a 16-percent annual rate since July (see Chart 1). Reflecting weakening production, employment has drifted downward at more than a 4 percent rate, and unemployment has risen. The unemployment rate reached 8.5 percent in mid-January, up sharply from the 7 percent level reached briefly in mid-1981 (see Chart 2).

But this view of the weakening in the economy is too narrow. Economic activity has not expanded appreciably since early 1979 — that is, for nearly three years. Real GNP has risen at merely a 1-percent annual rate since first quarter, 1979. In the preceding three years, real GNP expanded at nearly 5-percent per year. Similarly, industrial production was essentially level from early 1979 to mid-1981 (ignoring a sharp downturn and recovery in 1980). This same lackluster pattern appears in numerous other economic indicators.

In light of this extended background, the discussions of the President's budget proposals are surprising. Apparently, both Democrats and Republicans benefit from the view that the current recession is a recent phenomenon. On one hand, the Democrats, in full power until early 1981, prefer to blame the weakening in the economy on Reagan and his supply-side economics. On the other hand, Republicans prefer to view the recession as a surprise — as though it jumped suddenly from behind a bush. Any other view suggests that policies to date have been either ill-timed, inappropriate, or ineffective. The administration appears reluctant to continue in the message implied by its policy: wait.

Moderating Inflation

There is growing evidence that inflation has slowed. Producer price increases began to moderate in the spring of 1981; increases in the consumer prices began to diminish during the autumn.

There have been several episodes of rapid inflation during the past decade, but the most entrenched inflation occurred from early 1978 into 1981. Both producer and consumer prices rose at double-digit rates during much of that three-year-plus period.

After April 1981, however, producer prices began to rise less rapidly. Since April, producer prices have risen at less than a 5-percent rate. In the preceding year they rose nearly 11 percent. Following the moderation at the producer level, consumer price increases began to diminish after September. Since September, consumer prices have risen at just over a 5-percent annual rate as compared with 10.9 percent in the preceding year.

If the rate of inflation continues at or near its recent pace, it is plausible that the public may alter its inflation-

Taxes in Reagan's California *By A. James Heins* / *Page 3*

Workers' Compensation *By Allan J. Harrison* / *Page 5*

ary expectations; in the long term, expected inflation will be consistent with actual experience.

Interest Rate Changes

Interest rates are substantially lower than in mid-1981, but have moved upward in the past several months. The prime rate — the rate of interest charged by banks to their most credit-worthy customers — reached and remained near 20.5 percent during the summer and early fall of 1981. Then, in a series of stairstep declines from mid-September to mid-December, they moved to 15.75 percent. With an expected rate of inflation centering around 10 percent, it is reasonable to expect rates to fluctuate around 13–15 percent.

Market-determined interest rates, both short- and long-term, began moving higher in late November. For example, yields on one-year Treasury bills rose from 10.63 percent in the last week of November to well over 13 percent in early February. Reflecting the sharp and sustained rise in market interest rates, the prime rate moved to 16.25–16.50 in early February.

Recent interest-rate changes are inconsistent with developments in the rate of inflation. Indeed, if inflation moves toward 5 percent, interest rates should drop to the 9–11 percent range. The issue is whether interest-rate pressures will abate in line with the moderation in inflation. In the short term, interest rates have been affected by prospects for a large increase in the federal deficit. Although the projections of increased deficits are realistic, the apprehension regarding the possible impact on credit markets is probably ill-founded.

Monetary Growth

Monetary aggregates have expanded at roughly their long-term pace over the past year and in recent months. During the past decade, the money supply expanded at a 6.6-percent annual rate. By comparison, money grew 7.2 percent during the past year and has expanded at nearly a 12-percent rate since September (see Chart 3).

The growth in money has been made possible by continued expansion in the reserve base of the banking system, along with an efficient use of such reserves in support of monetary growth. The Federal Reserve provides bank reserves by purchasing government securities in the national credit markets. An examination of developments in bank reserves provides no clear evidence of a sustained shift in the Federal Reserve's policy — either in response to the weakening in the economy beginning in early 1979 or to more recent economic declines.

Chart 1

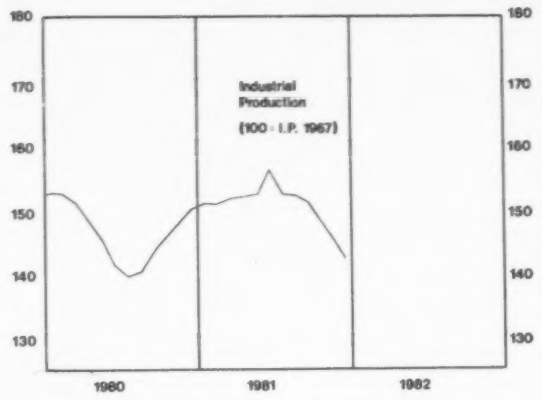


Chart 2

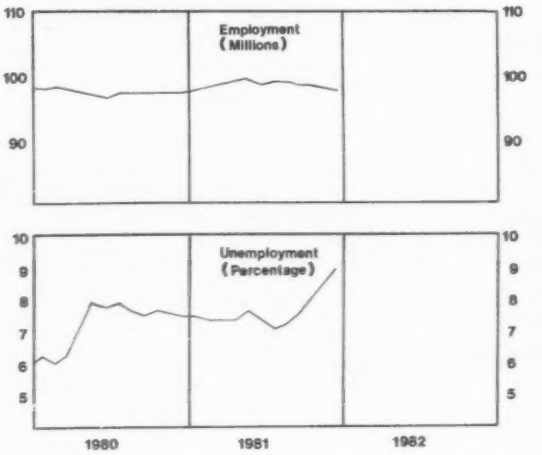
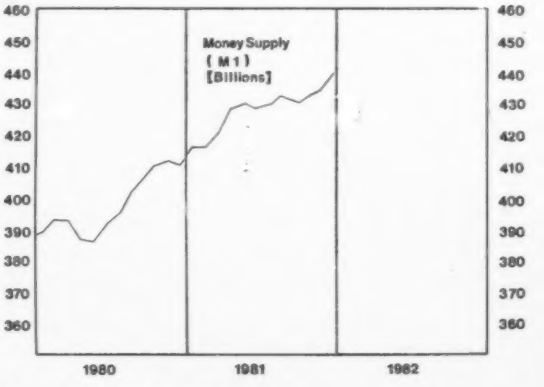


Chart 3



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Taxes in Ronald Reagan's California: Implications for Illinois

A. JAMES HEINS

An interesting insight into Ronald Reagan's powers to limit government and stimulate economic growth can be seen from two charts that describe the California experience over the three decades since 1950. Chart 1 compares state and local government spending in California with a number of other states and with the US average. It shows that California government revenues (as a percent of income) were running about the same as New York in the years 1958–67, and well above the other states. After 1967, growth of government slowed; and by 1972, government revenues were declining as a percent of income, although still above the US average. Ronald Reagan is directly responsible for California state budgets from 1968 to 1976.

Chart 2 compares growth of personal income in California with that of the other states. An upward-sloping line indicates that the state represented is deriving an increasing share of US personal income. For example, in the peak year of 1963 California's share of US income was 130 percent of its 1950 share, or 30 percent higher. After 1963, however, incomes in California were declining relative to the US as a whole. From this vantage point, it is hard to believe that California's share of US income declined over such a protracted period as 1963 to 1973, but it did. Beginning in 1973, however, California resumed its earlier pattern of economic growth.

If one puts the charts together, the following scenario emerges. Ronald Reagan runs for governor in California because government is growing too fast and the economy is deteriorating. He wins the election, and growth of government is slowed and eventually reduced. Within five years, the economy of California turns around and resumes its pattern of economic growth. While these charts do not prove any causal relationships, they are highly suggestive.

Two major implications arise from these data. For one, Ronald Reagan has demonstrated the power to put together an administration capable of reducing the relative size of government and turning the economy around. Americans may benefit generally from improved expectations that derive from this demonstration.

The second implication is for state governments. It is possible to reverse a long pattern of growth in government spending in a state; and, reducing government spending may be followed by improvement in a state's economy in a matter of a few years.

By this time, readers have noticed other relationships revealed in the charts. Texas is the only other large state to show an increasing share of US income, and its growth has been accelerating during the years of energy shortage. New York's economy has deteriorated badly;

(continued on p. 12)

Chart 1. State and Local Revenues as a Percent of Income (1958–1980)

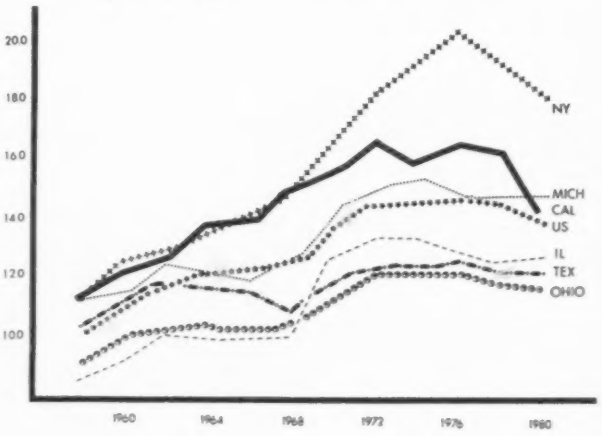
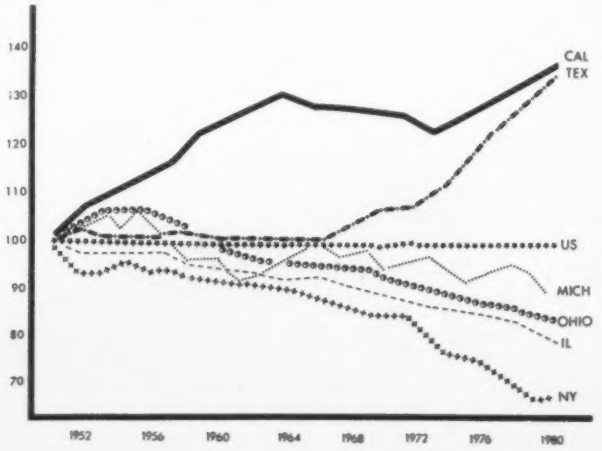


Chart 2. Personal Income as a Percent of 1950 Share of US Income 1950–1980



A. James Heins is Professor of Economics and has been teaching in the departments of Finance and Economics at the University of Illinois in Urbana-Champaign since 1960. Because of his interest in government and the Illinois economy, Heins has consulted with many agencies of government in Springfield. He has worked for the Departments of Revenue and Finance, Appropriations Committees, and the Bureau of the Budget; and he has served on the Illinois Fiscal Commission and the Governor's Council on Jobs and the Economy. He also serves as economic consultant to the Illinois State Chamber of Commerce.

Illinois Business Indexes

Item	November 1981	October 1981	September 1981	August 1981	November 1980
Leading indicator (1969=100)	83.1	83.4	83.9	84.9	89.4
Coincident indicator (1969=100)	130.7	130.1	129.2	127.6	128.2
Employment-manufacturing (in thousands)	1156.0	1171.4	1188.7	1184.1	1198.9
Average weekly hours-manufacturing	40.0	40.0	39.9	40.0	40.1
Weekly earnings-manufacturing	$ 367.60	$ 366.00	$ 365.08	$ 363.60	$ 338.04
Layoff rate-Chicago	0.9	1.2	0.8	0.8	0.7
Help wanted advertising-Chicago (1967=100)[a]	61.0	39.0	60.0	67.0	78.0
Help wanted advertising-St. Louis (1967=100)[a]	42.0	43.0	52.0	50.0	60.0
Ordinary life insurance sales (in millions)	$ 1,869	$ 1,902	$ 1,780	$ 1,660	$ 1,504
Retail sales (in millions)[b]	$ 4,562	$ 4,525	$ 4,232	$ 4,208	$ 4,292
Coal production (in thousands)	5,124	6,224	5,587	5,516	4,666
Petroleum production (in thousands)	2,090	2,150	2,089	2,054	1,808
Vendor performance, seasonally adjusted (percent)	34.7	39.4	44.7	49.6	50.0
Building permits (in thousands)					
Residential housing units	.98	1.25	.97	1.32	2.87
Value of residential housing	$49,026	$61,415	$47,537	$60,076	$117,989
Value of nonresidential construction					
Industrial buildings	$19,035	$27,883	$19,027	$46,188	$20,721
Office, banks and professional buildings	$29,125	$44,407	$57,174	$38,565	$49,777
Stores and other mercantile buildings	$11,427	$14,533	$11,491	$12,156	$17,309
Other	$20,409	$35,460	$22,436	$25,623	$60,167
Consumer price index					
North Central US	-	149.8	-	149.3	-
North Central/population more than 400,000	-	152.6	-	152.3	-
North Central/population 385,000 to 1,250,000		148.8	-	148.1	-
North Central/population 75,000 to 385,000	-	145.9	-	-	-
North Central/population less than 75,000	-	146.7	-	145.3	-
Chicago	277.6	276.1	276.9	275.8	259.9
St. Louis	273.8	-	273.4	-	253.8
Prices received by farmers	110.0	113.0	117.0	125.0	135.0
	1981:I	1980:IV	1980:III	1980:II	1980:I
Personal income (in millions)	$128,645	$125,688	$123,234	$119,008	$116,227

[a]The Conference Board, *Help Wanted Advertising*, November 1981. [b]Most recent month projected by BEBR.

BEA County Data for Illinois, 1974–79

County sets for Illinois are available from the US Bureau of Economic Analysis for personal income, employment, farm income, and transfer payments for the years 1974 to 1979. The personal income and the employment tables replace tables for 1973 to 1978, dropping 1973, adding 1979, and revising the figures for 1977 and 1978. Farm income and transfer payments tables supersede sets for 1969 to 1977 and 1972 to 1977 respectively. The 1978 and 1979 numbers are new, while those for 1976 and 1977 have been revised.

Personal income, employment, and transfer payment sets include pages for each Standard Metropolitan Statistical Area. Charge is $20 for each of the four sets of all counties to cover reproduction and handling charges. Combined sets of old and new tables are $25 each. Individual pages are $1 each with a $5 minimum charge.

Two sets of Illinois statewide personal income are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. Charge is $5 for each set.

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Workers' Compensation: Should the Law Be Renamed "Insurers' and Attorneys' Compensation Act"?

ALLAN J. HARRISON

"What's Wrong with Workers' Compensation: The Lump-Sum Payment?" appeared in the December 1979 issue of *Illinois Business Review*. In that article, I suggested that the use of lump-sum settlements in workers' compensation claims is fundamentally detrimental to that program's nationally accepted goals. The conclusions reached regarding the effects on those goals may be summarized as follows:

Complete Appropriate Medical Care. "Doctor shopping" in order to minimize or maximize the extent of evaluated, permanent partial disability frustrates this goal. Treatment of the injured becomes secondary to proving or disproving the claim.

Physical and Vocational Rehabilitation. With the focus on a money settlement, rehabilitation receives little, if any, attention. Employers want employees back to work, and employees often want extended time off — each in order to better their cases regarding the final settlement.

Continued Earnings. A lump-sum settlement seldom represents lost earning capacity in fatal and serious, permanent disability cases. Both insurance companies and employee attorneys have vested interests in a one-time settlement as opposed to a continuing claim. The social security system, rather than workers' compensation, may be the income maintenance system for injured workers and for the survivors of the fatally injured.

Encourage Safety. Because of the focus on lump sums, a number of factors distort any relationship between actual injuries and lack of safety and costs of accidents. Employee fears and ignorance, varying abilities among attorneys and Illinois Commission arbitrators, and unprofessional medical assessments are either created or intensified by the emphasis on lump-sum payments.

Deliver Benefits in an Efficient Manner. Lump-sum settlements result in litigation and insurance expenses that substantially raise employer costs while diminishing the benefits available to workers.

In that same article, I further contended that insurers and attorneys are now the prime beneficiaries of a system originally intended to aid workers and their employers. Although this assertion was largely based on impressionistic evidence concerning the Illinois Workers' Compensation System, the preliminary analysis of data since collected from records of the Illinois Industrial Commission appear to confirm these hypotheses. Indeed, salient aspects of the data are so clear as to require little sophisticated mathematical analysis: the figures overwhelmingly indicate major abuses in the Illinois system and plainly point to insurers and attorneys as the system's prime beneficiaries.

Allan J. Harrison is professor at the Institute of Labor and Industrial Relations, University of Illinois.

The Table on page 6 indicates how the actual program in Illinois varies from certain major characteristics considered desirable in workers' compensation.

Background of the Study

The study consisted of a survey of closed cases in work-related fatalities and of lump-sum settlements equal to, or greater than, $20,000. Approximately 15 percent of these kinds of cases filed in 1977 were surveyed. Many of these cases were, of course, not closed until 1979 and 1980, and many were cases in which the accident had occurred well before 1977. Moreover, many of the fatal cases have not yet been closed and are still in litigation. The year 1977 was chosen so that the study should consist almost entirely of cases which arose after the 1975 passage of major revisions to the Illinois Act. A later year was not taken, since the study focused on fatalities and major settlements for permanent partial disabilities; and the survey attempted to minimize the number of nonclosed cases in these categories. The more recent the year in which a claim was filed, the greater the chance that a sample of major serious cases would miss many cases still not closed and in litigation. For obvious reasons, major cases usually result in more litigation than minor cases. Consequently, the year 1977 appeared to be the most useful for survey purposes.

The sample consisted of roughly 15 percent of all cases closed for 1977 and totaled 5,943 closed cases. Of these there were 294 cases involving lump-sum settlements equal to, or greater than, $20,000 and 55 work-related fatalities. All fatal cases for 1977 were listed, even though only 39 of the fatal cases had been closed by December 1980. Fatalities and serious permanent disability cases represented roughly 6 percent of all cases surveyed.

A survey was also conducted of all closed cases in which employees did not have an attorney. Of the 5,943 cases of every magnitude, there were only 61 cases in which the employee did not have an attorney. None of these involved fatalities, and only 5 of these 61 cases involved settlements equal to, or greater than, $20,000.

An explanation may be necessary as to why the serious cases are classified as those involving lump-sum settlements of $20,000 or more for permanent partial disability. Essentially, this was a somewhat arbitrary judgment for which I take sole responsibility. The alternative was to take cases based on some measure of physical disability. However, the lump-sum system in practice tends to be as much a matter of arriving at a financial sum as it is determining an actual amount of disability. Estimated disability essentially reflects the "out-of-court" settlement and may, or may not, reflect

Table

Desirable Policies	Present Illinois Policies
1. Uniform and complete protection of all employees for all work-related injuries.	1. Only 15 percent of all reported work-related injuries and disease have recorded settlements. No information exists regarding the nature, extent, and disposition of the remaining 85 percent of the cases.
2. Continuing income maintenance for the permanently disabled and the dependents of fatally injured workers.	2. Of approximately 2,000 serious cases closed each year, only 30 ever receive a pension (1½ percent). Of 400 or so fatalities closed each year, only approximately 44 of the surviving dependents receive continuing compensation (12 percent).
3. Continuing medical care	3. The survey indicates *no* instances in which the disabled retain a right to medical care when they settle their cases.
4. Rehabilitation	4. Clear data are unavailable, but in questionnaires on serious cases I found that significant rehabilitation took place in only a small percentage of cases.
5. Minimizing legal advocacy and adjudication	5. In 99 percent of all closed cases the employee had an attorney. 15 percent of all cases required a hearing before an Illinois Industrial Commission arbitrator.
6. Efficient delivery of services	6. In cases of self-insured companies, it is questionable whether after attorney fees and insurance costs, 80 cents of every dollar spent by employers ever reaches the employee in the form of benefits. In the case of private insurers, I doubt that 50 cents of such dollars go to actual benefits.
7. Coordination of workers' compensation and other income maintenance programs such as social security	7. In fatal cases there is no coordination with any income-maintenance program, including social security. There is very limited coordination with social security in permanent disability cases.

the actual extent of physical disability. Moreover, calculating the extent and nature of disability is subject to a host of inconsistent rules of thumb that have grown up over the years.

For example, cases involving injuries to the back are often settled as a percentage disability of one or both legs. Finally, those practicing in the field of workers' compensation and experienced public servants at the Illinois Industrial Commission confirm the soundness of the assumption that settlements or awards of $20,000 or more do, indeed, indicate serious permanent disability, although the exact nature of that disability may not be clear from the settlement sheets.

A word of caution, also, is necessary in regard to the basic information collected from the files of the Illinois Industrial Commission. The substantive information kept on these cases is taken from a settlement form, *Settlement Contract Lump Sum Petition and Order,* well-known in Illinois as the "pink sheet."

First of all, it should be noted that of the roughly 250,000 work-related injuries reported to the Illinois Industrial Commission each year, only about 42,000 are resolved through the claims system of the commission. Of course, there are probably many initially reported that are relatively minor and in which the employee makes no effort to obtain a settlement under the law. Nonetheless, one can only conclude that there are large numbers of injured workers who just do not know their rights under the law and may indeed be intimidated in the exercise of their rights.

However, there are real incentives for employers and their insurers to process the more serious cases through the commission, since once a settlement is arrived at in this fashion, they are relieved of any continuing responsibility for the employee's disability and any future related medical costs. Moreover, since this study is directed at the way the law operates in Illinois, the basic relevant data are the processed cases, rather than all work-related injury cases.

Finally, the data reported on the "pink sheet" are not reported in an entirely consistent fashion. Oftentimes, for example, cases which obviously had a number of weeks of total temporary compensation do not have this fact recorded. Sometimes the pink sheets record only

that portion of temporary total compensation which the employer refused to pay. Then again, at times all temporary total compensation is recorded, whether the employer contested a portion of it or not. Such inconsistent recording practices by the parties who fill out the pink sheet limit the generalizations one can make about such things as temporary total compensation.

A further set of data was collected from the Illinois Industrial Commission's rate-adjustment fund records. These are records of injured workers and survivors who are on pensions and entitled to the annual adjustments paid in accordance with increases in the state's average weekly wage. There are at this time only 708 recorded cases of pensioners in this system, and these include cases going back to 1965. Approximately 460 cases date from 1975 to the present. From July 1979 to June 1980, the rate-adjustment fund added 93 cases for pensions for survivors and for the permanently, totally disabled. A sample of 61 of these cases was made, and appropriate information was taken from the docket sheets kept on those cases.

Attorneys and Illinois Workers' Compensation

It is evident that the role of attorneys on behalf of injured employees is overwhelming in the Illinois workers' compensation system. Out of 5,943 cases closed for claims made in 1977, only 1 percent of the injured employees did not retain attorneys to handle their claims. Of the 294 cases which settled for a lump sum of $20,000 or more, there were only 5 employees who did not have attorneys. In all of the claims in fatality cases, the survivors had legal counsel. Hence, although technically a claimant need not have an attorney to represent him in filing and pursuing a workers' compensation case, as a matter of practical reality nearly all claimants do have counsel.

Contrast this with the Wisconsin system in which the state agency actively pursues the rights of injured employees and ensures their receipt of legislated benefits. With a working population less than half that of Illinois, the agency processes and secures benefits for some 80,000 employees a year, compared with the only about 42,000 cases in Illinois for whom we have any firm knowledge that some benefits have been paid. Moreover, only about 4,000 cases actually involve a request for review in Wisconsin, and in only 1,200 of these cases is a hearing required. Lawyers on behalf of injured workers appear in less than 5 percent of the Wisconsin injury cases.

The Wisconsin agency estimates that only 1½ percent of workers' compensation disbursements are spent on attorney fees. It is impossible to calculate the legal costs of the Illinois system exactly, but unquestionably they are a drain on a benefit structure intended to assist injured workers. To put the matter in some perspective, permanent partial disability constitutes 54.3 percent of the benefits paid (Norman Walzer, "The Rising Rates for Workers Comp," *Illinois Issues* (June 1978), p. 107). The remaining percentage goes for medical, uncontested, temporary total disability and fatalities compensation. Employee attorneys are permitted to take up to 20 percent of permanent partial settlements, unless the settlement obtained by the attorney fails to exceed a written offer by the employer or insurer — a rare case indeed.

Even if one assumes that some attorneys do not take a full 20 percent in all cases, conservatively we can estimate that the average amount taken by attorneys is 15 percent. This would still bring the employee attorney share to about 8 percent of *all* benefits paid; and, of course, one must also consider that there are legal costs on behalf of self-insured employers. We may assume that these interests do not hire any less-skilled or less-expensive legal talent than do the injured employees. If there is, then, a similar cost paid for this legal assistance, we have a further 10 percent overhead. In the case of insurance companies, the National Council on State Workers' Compensation estimates that 30 percent of every premium dollar goes for administrative costs which undoubtedly include legal fees.

Finally, the cost to the State of administering this adversarial system cannot be ignored; and, although some administrative costs would be involved in the best of systems, the present, highly legalistic, adversarial system obviously greatly increases the cost of running the commission. For example, although the vast majority of the work performed by the commission's arbitrators is the rather perfunctory approval of *Settlement Contracts and Lump Sum Petitions* (some 40,000 in fiscal 1979), the arbitrators did hear and decide 6,000 cases in fiscal 1979; and the commission itself had to hear and review over 2,000 cases in the same year (Report of the Illinois Industrial Commission, Fiscal Year 1979 1 July 1978–30 June 1979).

The Lump-Sum Settlement — in Illinois It Is the Only Settlement

The data also indicate that in fatalities and permanent total disability cases, as in less serious cases, the almost universal method of settlement is not by the payment of a ⅔ pension but by payment of a lump sum. From July 1979 to June 1980, there were 328 awards for work-related fatalities and permanently, totally disabled employees. However, only 93 of the claimants obtained a pension rather than a lump sum; and 20 percent of these pensioners subsequently elected to take a lump sum. Obviously, this does not take into consideration the large number of injured employees and survivors who elect a lump sum for permanent *partial* disability and who never have their cases heard by an arbitrator on their merits as a permanent *total* disability case.

From January 1975 to the Spring of 1981, there were only 460 instances of survivors and permanently, totally disabled employees who obtained and kept a pension. That is, only 90 or so are added each year. Some 400 awards of this kind are made each year, entitling the claimant to a pension; however, through long litigation and bargaining, only 90 or so actually get a pension. This is roughly only 4 percent of the total of 2,360 fatal and serious cases.

How can one explain the fact that seriously injured employees or their survivors accept a lump sum rather

than a pension set at ⅔ of the employee's wage and adjusted annually in line with the increase in the state average weekly wage? Plainly, there must be both pressure and incentives to obtain this outcome; but just what are these incentives and pressures, and who uses them?

I have noted the overwhelming involvement of employee attorneys who have a vested interest in lump-sum settlements. If their clients receive a pension settlement, it could require the lawyer to wait up to seven years for his full payment. Furthermore, the lawyer has the incentive of avoiding the work involved in contested cases.

But a real question arises concerning insurance companies. Why should they prefer a lump-sum settlement rather than a pension? A pension permits the retention of funds in reserves, and on these reserves the companies earn income. This is particularly true of fixed-term contracts of say 10 to 15 years, since the company's liability is thereby clearly and predictably limited. (The State Rate Adjustment Fund, not the employer or insurer, pays the adjustment for increases due to the rise in the state's average weekly wage.)

One must conclude that any self-interest that insurance companies may have in term contracts seems to be more than counterbalanced by what must be the two obvious advantages of the lump sum — one, the insurer must, in its estimation, obtain a settlement for considerably less than it would pay in a pension; and two, it can dispose of the case with no further administrative work. Moreover, insurers have been very successful, in any event, in setting aside large sums for reserves in spite of their almost complete use of lump-sum settlements in disposing of cases.

Although the motivation for insurance companies and attorneys to press for lump-sum settlements is clear, this does not explain why the survivors and the permanently, totally disabled workers should accept a lump sum rather than a pension. The first and, perhaps, the major reason in most cases is simply worker ignorance: people do not know that a pension is available. However, this still does not explain why less than 25 percent of the survivors and permanently disabled who actually do receive an award of a pension still agree to accept a lump-sum payment, since having received an award they presumably know that a pension is possible.

There appear, then, to be at least two other reasons why the employees and/or survivors settle for lump sums. The first is the ability of the employer's insurance carrier to continue to contest the award. Of the 61 awards of pensions surveyed, 30 cases had been appealed, and 28 went to a hearing before the Illinois Industrial Commission. Six of these cases were in turn appealed to the Illinois Appellate Courts. A survey of the time taken just to obtain an arbitral award in 105 fatal and 83 permanent, total disability cases from the first six months of 1980, indicates that it took an average of over a year for fatal cases and three years for permanent, total disability cases.

The average delays obviously would be much greater if one looked at only those cases in which the employee or survivor persists in desiring a pension rather than a lump sum. These delays put pressure almost entirely on the employee, not on the insurer or the employer. Moreover, the employee's or survivor's attorney is put to much more work in fighting a case. Since his reimbursement remains at 20 percent but his work may be doubled or tripled, depending on the extent of appeals, he has an enormous incentive to get his client to take a more modest lump sum. Although he may lose 20 percent of the difference, that increment is not proportional to his additional work if he continues to fight the case. In addition, of course, as already noted, if his client does get a pension, the lawyer may have to wait to obtain his compensation over a period of time as long as seven years.

Moreover, the permanently, totally disabled and survivors have a substantial cushion in the form of social security benefits. Although the National Commission recommended that workers compensation benefits be coordinated with social security benefits, that coordination has not taken place to any significant degree. Essentially coordination means that one benefit or the other, or both, be adjusted downward by a certain amount (offset) so that the total of both payments does not exceed a certain percentage of the employee's preinjury or prefatality income.

First of all, in fatal cases survivors draw full social security benefits with *no offset for any workers' compensation benefits* (Daniel R. Price, "Three Aspects of the Relationship of Workmen's Compensation to Other Public Income Maintenance Programs," in *Supplemental Studies for the National Commission on State Workmen's Compensation Laws* [Washington: US Government Printing Office, 1973], Vol. 1, p. 313). If, say, social security amounted to 58 percent of the deceased employee's former wage, since this payment is not taxable, the survivor's benefit would exceed 70 percent of disposal income for a worker who formerly had take-home pay of 80 percent of gross income. If one adds a workers' compensation pension of 66⅔ percent, also not taxable, the survivor would have a pension of 125 percent of former gross income or the equivalent of replacing 156 percent of his former take-home income.

For the permanently, totally disabled, social security is supposed to be coordinated with the employee's workers' compensation so that the amount of pension does not exceed 80 percent of the employee's former gross income. This means that the worker in Illinois who receives 66⅔ percent of former income as a pension would only receive an additional 13 percent from social security. When he takes a lump sum, that too is discounted from his social security entitlement until it is written off. However, lawyers and insurance companies have devised methods for reducing the amount that must be discounted from social security, thus permitting the worker to draw his full social security benefits at an earlier date and have the benefit of a hefty lump-sum settlement.

In an Illinois State Bar Association publication distributed to the bar association's members in the section on worker's compensation law, an article by a Chicago attorney, David R. Bryant, explains how this is done. For the sake of illustration he uses a lump-sum payment

(continued on p. 11)

Risk, The Stock Market, and Beta

JOAN JUNKUS

The beta coefficient: It has been called a wholesale revolution in investments and the bedrock theory of money management. It has also been called a cult, a fad, and a boondoggle. Rumors of its death have been reported in the *Wall Street Journal*. Yet Modern Portfolio Theory (MPT) and its central offspring, the "beta coefficient," are very much alive in the investment world today. The private pension system has put billions of dollars into funds managed according to its philosophy. Congress has mandated that its principles be used to judge the prudence of some fiduciary agents, and business schools continue to produce graduates who talk about risk and return in terms of a stock's beta.

Defining Beta

One central idea behind the beta coefficient can be summarized succinctly by the old maxim, "there's no such thing as a free lunch." In stock market terms, higher returns on money invested, the goal of any investor, go hand in hand with higher risks. And the beta coefficient attempts to measure the risk involved in investing in a particular stock.

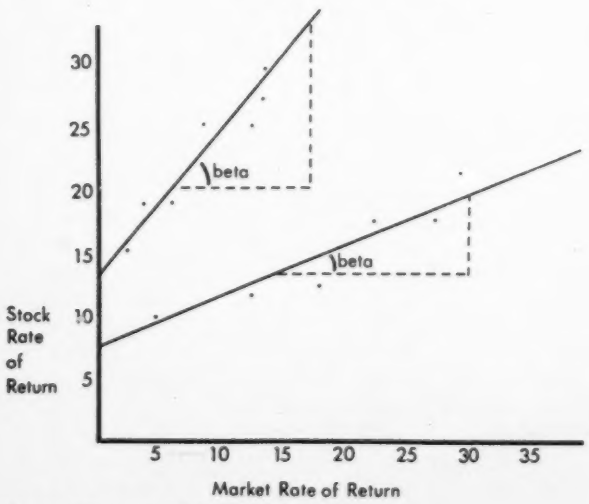
Risk is generally defined in terms of the possibility of loss in the value of an asset. However, in Modern Portfolio Theory, it is not loss per se which is the focus of investor attention, but the future value of the investor's total collection of assets, his portfolio. In a portfolio, price movements in one stock can be offset to some degree by the price movements of other stocks. For instance, during a gas shortage, the price of stock in Standard Oil of Indiana may rise while McDonald's, sensitive to the cost of driving, may fall. Such company-specific price movements are referred to as "unsystematic risk." A well-diversified portfolio with a number of stocks can be expected to even out this "unsystematic risk." What is left is the movement in price associated with the market as a whole. This is called "systematic risk." It is this notion of risk which beta attempts to measure.

Beta summarizes the relationship of a stock to the market as a whole. Beta is a number which measures the volatility of a stock in relation to the market (see Chart). A beta of 1.3 for Bally stock means that Bally will rise on average 13 percent when the market rises 10 percent. In a bull market, a higher beta stock can be extremely profitable. However, this volatility is a double-edged sword, because a high beta stock can also be expected to decline more than the market declines in a downturn.

The Table lists the betas of a variety of companies headquartered in Illinois. Note that Central Illinois Public Service and Commonwealth Edison (public utilities) have relatively low betas, .50 and .65, respectively; low betas are also associated with Beatrice Foods and Quaker Oats (both .85). The most volatile stock is that of Chicago and Northwestern with a beta of 1.45. Most betas range between .5 and 1.5; and since very few assets move in reverse relation to the market on a consistent basis, there are very few negative betas. By definition, the market has a beta of 1.0. The average for the group listed here, at 1.02, is quite close to the market.

The MPT goes further than merely providing a measure of risk. The theory also maintains that, on average, a stock can do no better (or worse) than the return determined by its beta risk. The reason for this belief is that the market is "efficient." The notion that a market is efficient implies that all the information available to the market — including the know-how and experience necessary to judge the meaning of that information — is already incorporated into stock prices. In other words, it is impossible consistently to outguess a market

CALCULATING BETA



Bureau of Economic and Business Research

Table

BETAS FOR SELECTED COMPANIES BASED IN ILLINOIS [a]

Stock	Beta	Stock	Beta
Abbott Labs	1.15	Intl. Harvester	1.00
Archer-Daniels-Midland	1.15	Intl. Minerals and Chem.	.95
Bally Manufacturing	1.30	McDonald's	1.05
Baxter Travenol	1.00	McGraw Edison	.95
Beatrice Foods	.85	Motorola	1.20
Borg-Warner	1.05	Playboy Enterprises	1.15
Caterpillar Tractor	1.00	Quaker Oats	.85
Chicago and NW	1.45	Santa Fe Inds.	1.15
Central Illinois PS	.50	Searle, G. D.	1.15
Commonwealth Edison	.65	Sears, Roebuck	.90
Dart and Kraft	.70	Square D	.85
Deere	.90	Staley	1.25
Esmark	1.00	Standard Oil (Ind.)	1.10
IC Industries	1.10	Sundstrand	1.25
Inland Steel	.75	UAL, Inc.	1.25

Beta indicates how volatile a stock's price is compared with the market on average. Since the stock market as a whole has a beta of 1.0, a beta greater than 1.0 indicates high volatility, while a beta less than 1.0 indicates low volatility.

[a] Based on weekly data and the NYSE value-weighted index

filled with competing private and professional investors in search of underpriced stock. Empirical research supports this view. Study after study has concluded that managed portfolios are not consistently able to do significantly better than would be expected from random chance. Professional money managers do not seem to be able to predict price movements successfully or to pick high-performance securities consistently over any meaningful period of time. Such results imply that sophisticated security analysis may produce no better results than could be achieved by picking stocks with a dart board. Because of this, investment firms have formed a number of so-called "market index funds." There are large well-diversified mutual funds which are structured to duplicate the performance of some market index like the Standard & Poor's 500.

The theory does not say that it is impossible to make an occasional killing in the market by finding a stock which is underpriced. Rather, it says that such exceptional performance is a random event and, hence, unpredictable. The lucky investor can find an undervalued stock on occasion; but, if he persists, such luck will be offset by the occasional disaster. What the theory is really saying is that an investor cannot really beat the odds by relying on his hunches. In the long run, the market will only pay out what is coming to an investor on the basis of his portfolio's beta.

Nonmarket Risk

Hope springs eternal, however. The search for "abnormal" returns — greater than what can be expected on the basis of a stock's beta — leads to the definition of a stock's alpha. While beta measures the stock's movement with the market, alpha is a measure of nonmarket risk. Modern Portfolio Theory says that such risk will not be reflected in a security's expected return. Nonmarket risk includes company-specific risk, such as the initiation of an expensive lawsuit or a recall of a company's products, as well as special factors affecting groups of stocks, developments particular to an industry or a kind of company. For instance, the stock of the heavy machinery industry, companies such as International Harvester and Caterpillar Tractor, may move together regardless of the movement of the market in general.

It is easy to see why this is called "nonmarket risk." If a gamble on a company- or industry-specific development goes wrong, an investor would have been better off in a market-index fund. Looking for high positive alpha stocks, then, is really looking for stocks that the market has undervalued. Can money managers or private investors find the elusive alpha time after time? Although the evidence from academia may cast doubt on the ability to do so consistently, the multiplicity of factors affecting a stock's price encourages a continuing search.

Using Beta

If the MPT cannot be used to crank out superior performance, what use, then, is a beta or the MPT for the average investor? Most analysts feel that beta is a way to systematize what is really common sense; that is, beta can be used to give an investor a sense of the odds involved in his particular investment choices. For instance, high beta stocks are good investments only if the market is expected to rise. The use of beta can also save an investor the time and money spent on trying to beat the market using intuition alone.

Besides aiding in investment decisions, beta can also be used to measure professional performance. Big gains by professional money managers have to be considered in light of the kind of risks involved in their portfolio, and funds with moderate performance ranking for returns may really be generating returns superior to the risk involved.

Use of the beta and MPT in professional money management has increased considerably over the 1970s. The *Wall Street Journal* estimates that fully one-third of the $200 billion in US private pension funds is invested according to the beta theory. Many investment firms have thousands of dollars of computer software designed to produce "customized" portfolios for clients with constraints on beta levels, dividend yield, and a host of other factors. Research departments of brokerage houses publish detailed data on betas and returns for individual stocks and for industry groups. And Congress has legislated that the performance of pension-fund managers be assessed in terms of overall portfolio diversification rather than individual investment choices.

Is Beta Dead?

Yet despite the almost wholesale adoption of MPT as a framework for security and portfolio evaluation, there is a growing debate on the merits of beta as an accurate measure of a security's risk. An investment magazine recently went so far as to ask on its cover, "Is beta dead?"

One part of the controversy centers around Richard Roll, a finance professor at UCLA and a leading critic of the academic literature pertaining to tests of the MPT. Roll maintains that the measures used to proxy "the market" are seriously flawed. The market of potential investment assets includes many types of property beyond stocks and bonds. Looked at realistically, investment opportunities include real estate, art and antiques, even the "human capital" represented by education. Thus, narrowly defined proxies for "the market" — such as the Standard & Poor's 500 or the Dow Jones Industrial — simply distort the beta numbers obtained.

This criticism has led to a search for improvements in the market index used to explain stock returns. Multi-index models have been proposed which use factors in addition to the stock market. Indexes suggested include the inflation rate, debt market movements, and measures of dividend yield. Roll himself has helped to devise a model which includes literally any number of indexes to account for a stock's return.

Other criticism of beta concern deficiencies as an investment tool. For one thing beta estimates are derived from past price performance, so that recent important changes in a company's fortunes will not be reflected in

its beta measure. A company destined for a sudden death — a disaster like Penn Central — can have a low beta right up to the end. Companies in a slow decline, too, may appear less "risky" in a beta sense than a firm experiencing dynamic growth, since the weak performance of a dying company will be more predictable. These kinds of risks do not show up in volatile price behavior.

Another troublesome problem is that beta estimates are sensitive to the way they are calculated: calculations can give different numbers depending on whether daily, weekly, or monthly data is used. Market conditions in the time period used for the calculations can affect the end result. Some analysts have sought to refine the beta calculations to correct this defect as well as to compensate for the index problem pointed out by Professor Roll. Barr Rosenberg, a professor at the University of California at Berkeley, has developed a system for calculating beta that incorporates many of the factors that influence the market itself, factors such as growth in GNP and changes in inflation. Called a fundamental beta (because it is derived from fundamental characteristics of the market and the firm), this measure may provide a better estimate of a stock's *future* beta than estimates made on past data alone.

Even with its acknowledged faults, however, beta theory can be valuable to an investor if it forces him to define his objectives and to set the level of risk he is willing to take to get there. With the problems involved in predicting a stock's performance, it may be something of a miracle to reduce a good-sized piece of the picture down to a single number, beta.

(continued from p. 8)

of $100,000. He then subtracts attorney fees ($20,000), outstanding medical expenses ($2,500), and a related expense ($500). This then leaves only $77,000 to be offset; but Bryant goes on to point out that one might deduct a further $22,000 for future medical costs and a sum of $18,000 for vocational rehabilitation based on an estimate from a vocational counselor. That leaves only $37,000 to be offset. Mr. Bryant further suggests that this remaining sum may be considered joint marital property, and, thus, the amount to be offset would be cut in half to $18,500. On this last point, attorney Bryant does add the warning that "any petitioner-counselor who utilizes this technique should be prepared to discuss the matter with Social Security."

The thrust of all this is clear. Why should a permanently disabled employee fight for a workers' compensation pension of ⅔ of his wages plus social security of 13 percent when he can get a sizable lump sum, have only a small portion of that sum offset, and soon be drawing full social security benefits of, say, 58 percent of his former earnings? In Illinois, then, social security, rather than the workers' compensation system, is being used as a major form of social insurance for work-related deaths and serious injuries. This is given some support in the previously mentioned article by Daniel N. Price.

From January 1966 to January 1968, only 3 percent, some 20,000 people, of those who had become entitled to social disability benefits were also receiving workers' compensation benefits. Of this 20,000, only 14,000 were still subject to the offset at the end of that two-year period. Of these 20,000, 60 percent of such people have used up any workers' compensation within a year and are fully being paid out of the social security benefits. Of course, permanent, total disability is a very rare award in workers' compensation cases. Placed in relationship to the much more liberal social security requirements, it strongly suggests that the overwhelming burden of work-related disability cases is being borne by social security, with very little contributed from the workers' compensation systems.

How Is the Private Insurance Industry Faring Under the Illinois Law?

The evidence shows that workers' compensation insurance is an extremely attractive line of business. The insurance companies have set rates that permit them to set aside so much of their premiums for "anticipated" losses, and these funds are called "reserves." On the reserves, the insurance companies earn a return that (1) does not go back into the reserves and (2) is not used in the calculation of the rate of return on this form of insurance — and, hence, it is not used in rate setting.

Since the passage of the 1975 amendments to the Illinois law, it is interesting to note the growth of these reserves and the relationship of the amount set aside for reserves to losses actually paid. 1975 constitutes a good basic year, since rates were established for that year based on experience under the old law. In that year losses paid were roughly $201 million and losses incurred were $264 million; premiums earned were $327 million; reserves were about $1,135 million. The next year the premiums earned jumped almost 60 percent to $514 million. Losses paid, however, were $265, but losses incurred were $419 million. The ratios of losses paid to losses incurred dropped from 75 percent to 51 percent. Until 1980, losses paid were about 60 to 65 percent of losses incurred, but in 1980 this ratio jumped back to 76 percent of losses incurred. Premiums earned in 1975 were $327 million, and losses paid were $201 million. In 1980 premiums earned were $1,025 million, and losses paid were $554 million. Thus losses paid have gone from 61 percent of premiums to 54 percent.

Finally, reserves have increased to $2,137 million from $1,135 million. The growth is clearly attributable to the pattern of greatly increased premiums in relationship to losses paid and, for the last five years, a tendency of an increase in losses incurred (an estimate) to losses paid (a fact). The basic question, though, is just exactly what do the "reserves" represent, aside from a golden investment for the insurance carriers?

Presumably, reserves are required to meet claims that have been incurred but have not been paid and to meet

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long-term requirements for pension and medical costs. As the data indicate, the lump-sum-settlement system in Illinois disposes of almost all long-term claims for pensions or medical care, so certainly a reserve in excess of $2 billion is not required for this handful of cases. The need for reserves then must be premised on an estimate of what already-outstanding claims will ultimately cost. It is true that each year the amount of paid losses have grown. However, the premiums paid by employers have grown apace. The question then remains, why should the reserves continue to grow, since five years ago they were more than adequate for anticipated losses for years? In short, do carriers need reserves totaling over $2 billion at this time? At 15 percent interest, the reserves earn $321 million a year. This sum is equal to 58 percent of all losses paid in 1980. Since premiums paid were slightly greater than a billion dollars, if this interest were considered in setting premiums, the premiums paid by Illinois employers could have been reduced by 31 percent last year! I have made repeated inquiries concerning the reserves. The Illinois Insurance Commission, the state and national Council of State Workers' Compensation Insurance, and several individual insurance companies were contacted for an explanation of these reserves. No one was willing or able to explain the need for these large reserves. This article constitutes a standing invitation to the insurance industry to explain the size and growth of these reserves.

Summary

In summary, the lump-sum settlement is the standard method for settling workers' compensation claims in Illinois. The instances in which a lump sum is not paid to settle all claims are so rare as to be insignificant for public policy purposes.

Employees are represented by attorneys in 99 percent of the cases closed with the commission, and legal and administrative costs represent a major burden for the system. Moreover, the adversarial nature of the system leads to appeals and years of litigation in major serious cases.

Insurance companies have acquired large reserves for what appear to be relatively modest predictable outstanding claims. These reserves, however, are a great source of revenue for the companies engaged in workers' compensation insurance, and currently this revenue is not used in the establishment of insurance rates. Insurers thus have a great self-interest in constantly overestimating losses incurred for purposes of adding to the reserves. In the actual settlement of claims, however, the insurer obviously has an interest in minimizing the payout and limiting all liabilities in the payment of a single modest lump sum.

Both attorneys and insurers are doing quite well, then, under the present system. Employer, employees, and the social security system appear to be the losers; and yet all discussions of reform in Springfield continue to ignore these fundamental flaws of the system.

(continued from p. 3)

and Illinois has not done as well as its major midwestern competitors, Michigan and Ohio.

Illinois residents might note that its government revenues comprised the lowest percent of income among the states shown — and were actually low when all states were considered — until 1968. Since then, Illinois taxes have surpassed Texas and Ohio and other states and have approached the national average, and its pace of economic growth has slowed. If Reagan's California experience were to be a guide, this would be a good time for Illinois to keep a tight rein on taxes and spending.

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Property Tax Issues in Illinois

TIM F. SCHEU AND PETER F. COLWELL

Despite a substantial amount of criticism, the property tax remains the largest single source of local government tax revenue. In 1977 property taxes accounted for 40 percent of Illinois Local Government Revenues. For fiscal year 1978–79 Illinois ranked third nationally in total property tax revenues (3.93 billion), and 17th nationally in per capita property tax revenues ($350).

The property tax has been characterized as being both inefficient and inequitable. Properties of equal value often do not pay equal taxes and more valuable properties often do not pay proportionately more taxes because of inequities in assessment practices. An inefficient allocation of resources often results from different effective tax rates between communities or different effective tax rates across property types within a community — again, because of faulty assessment practices.

The public reaction against the property tax has grown stronger over the past decade. Sources of this reaction include rising property tax rates, rising multipliers, rising inequities across property types (especially farm versus nonfarm), rising concern over state aid in financing education, and increased environmental awareness in protecting the land.

Legislation has been passed in many states, including Illinois, offering various forms of property tax relief for the aged, poor, farmers, and others. In 1965 only 6 states offered some type of property tax relief. Currently all 50 states offer tax relief programs. In the 24 years since Maryland enacted the first law in the United States providing for the differential assessment of farmland, such laws have spread to over 30 states. Propositions have been passed in California and Massachusetts which limit the taxing power of local government. Since 1971, suits have been filed in at least 40 states calling for the equalization of educational opportunity among all districts within a state. During the decade of the seventies, over one-fourth of the Illinois tax base has been removed in the name of property tax relief. Continued demands for property tax relief and assessment reform in the eighties will continue to diminish the property tax as a revenue source and alter its implications for resource allocation and equity.

This article examines several major issues surrounding assessment reform and property tax relief in Illinois. First, the evolution of farmland assessment practices will be examined. Second, current homestead exemptions and circuit-breaker programs will be described and compared to alternative measures. Finally, the controversy surrounding the method for equalizing assessment ratios in Illinois will be analyzed.

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Differential Farmland Assessment

Assessing farmland differently from other property types may serve a number of ends. It may bring farm taxes more in line with farm income or more in line with the public service benefits farmers receive. It may also have an impact on the conversion of farmland to urban uses. Most surprisingly, it may actually equalize tax treatment across property types.

There are three general types of differential farmland assessment laws utilized in the United States. The three types are: preferential assessment, deferred taxation, and restrictive agreements. Some programs utilize elements of more than one of these types.

Under the preferential assessment approach, land devoted to agricultural use is assessed on the basis of its

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value in that use. The owner pays no penalty for converting the property into a nonfarm use.

Deferred taxation also provides for assessment according to value in current use, but it adds a charge to the owner when the land is transferred into a nonfarm use. The charge is usually made by recapturing the difference between taxes paid with preferred assessment and what taxes would have been without it. Some states also apply a penalty to this amount.

A restrictive agreement program is one in which the landowners agree to restrict the use of their land for a period of years in return for preferential assessment. Again, the states vary as to methods of recapture and penalties charged owners who develop their property prior to the end of an agreed-on period.

Prior to 1970, farmland and improvements in Illinois were supposed to be assessed at one third their market value. As always, assessed values for farmland at the urban fringe were very high due to the high value of competing urban land uses. The extent to which high assessments contribute to a more rapid conversion from farm to nonfarm usage became a concern of environmentalists and farm groups. Illinois amended its constitution in 1970 to allow the legislature to provide for deferred taxation, and in 1972 a program was instituted in which assessments were to be made on the basis of the price the land would bring at a voluntary sale for farm use. If the land were converted to a nonfarm use, the difference between taxes actually paid and taxes which would otherwise have been paid for the preceding 3 years plus 5 percent interest would be due. While this appeared to be a significant switch from market value to a productivity index for the assessment of Illinois farmland, the program was voluntary and not widely used. It was the 1977 Farmland Assessment Act and its amendments that really changed the focus of farmland assessment from market value to productivity. The change was instituted to reduce the expected rates of assessed-value increase associated with rising land values, and to solve the problem of increased discrepancies between assessed value and one-third market value based on farm usage. The average land values of farm real estate per acre for the United States had risen 114 percent from 1972 to 1977. In Illinois it rose 204 percent. The average of county rural unequalized assessment-sales ratios had fallen from 24.26 in 1973 to 17.68 in 1976.

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The 1977 law was intended to justify preferentially lower farm assessment by utilizing farm productivity measures. Farmland assessments were to be based on soil maps and productivity indexes from ten representative counties chosen for the computation of the equalized value per acre of the highest or best grade land. A formula based on two income factors and an adjusted market value factor was supposed to be applied to the sample. The three factors are: (1) the average value per acre of agricultural products sold from a county; (2) the average value per acre of principal crops for a base period consisting of the most recent three years; and (3) 10 percent of the average sale price for farmland for the same base period. This last factor might be interpreted as anticipated permanent income. The average of the first and second factors were to be added to the third to generate a number for each of the ten counties. Thus, the number that was to represent assessed value was somewhat larger than stabilized gross income. These value numbers were then to be averaged for the ten counties to derive a single value number for the highest grade soil. The process is repeated for ten counties, predominately in southern Illinois, whose soil is generally of a lower grade than in other parts of the state. The value from each group of counties was to be used to establish a relationship between equalized assessed valuation and soil productivity. Local assessment officials were to utilize soil maps and other quality variables to determine the productivity of individual parcels. They were to apply local productivity measures to the equalized assessed valuation and soil productivity relationship to set an assessed value for the farmland in their jurisdiction. Buildings and other improvements were still to be assessed at one-third their market value. What this system lacked in conceptual appeal it gained in complexity.

Legislation passed during 1981 has greatly simplified the preferential assessment of farmland. The assessed value is to be set equal to net income divided by a five-year moving average of federal land bank rates. Net income is simply an estimate of stabilized gross income minus costs. Three factors are used to derive gross income: (1) a five-year moving average of real prices for the four major crops in Illinois (corn, soybean, wheat, oats); (2) a productivity index by soil type and management type (basic, profit maximizer); and (3) the proportions of each soil type typically allocated to the major crops. Costs are estimates of the actual costs incurred by Illinois farmers.

The objective of differential farmland assessment in Illinois has apparently undergone a change since 1972. In general, the objective of differential farmland assessment is either to improve equity or to influence development. The original attempt in Illinois for differential assessment appears to have been based on influencing the pace of development. The 1977 act and amendments clearly show a change in the objectives of differential farmland assessment in Illinois. The equity argument has gained prominence. The equity argument suggests that farmers pay too much property tax relative to others. Two ways of anaylzing the equity argument are in terms of the ability to pay and benefits received. In applying

the ability-to-pay criterion for distributing government costs, it follows that farmers' property holdings are quite large in comparison with their incomes, and that, therefore, their property tax payments are also large relative to incomes. In utilizing the benefits received criterion for distributing government costs, it is thought by some that farmers pay property taxes entirely out of proportion to the government services they receive.

Is the burden of the property tax excessive on farmers? There is no clear cut measure of an equitable tax. Economists differ as to the incidence (how much of the tax is shifted to the consumer in the form of higher prices) of the tax and the extent the tax on land is capitalized into the value of the land. Available data does give us some indication of the burden of the property tax on farmers. Since 1973, the ratio of income to property taxes has fluctuated around 5 percent for all sectors of the Illinois economy, while the ratio of taxes to income for the farm sector has fluctuated around 10 percent. The variation in the percentage for farmers is also much greater than for other sectors due to the extreme variation in farm income from year to year.

If some form of differential assessment for farmland is desired, there are still questions of specific objectives and administrative efficiency. If the objective is to implement some form of land-use control, then a deferral or restrictive type of program might be best suited. If the intent is to ease the tax burden on farmers, some form of preferential assessment is best suited. In Illinois it appears that the objective of the most recent legislation was to ease the tax burden on farmers. An alternative method to achieve this objective is simply to lower the assessment rate on farmland. For example, lowering the assessment rate on farmland from one-third market value to one-fifth might accomplish this objective.

Tax laws seldom have as limited effects as are intended. In the case of differential assessments for farmland, some local governments will have to turn to the state for increased aid and/or raise tax rates or reduce services. At the same time, farmland prices will increase to the extent that property taxes are capitalized into value.

The most persuasive argument for differential farmland assessment of a preferential type is that *preferential assessment, in fact, may involve no preferential treatment for farmland.* If farmland assessments were based strictly on the selling price per acre of farmland, farmland would be systematically over-assessed. The reason for this is that a large proportion of farms that sell are sold to make smaller farms into larger farms. The driving force in this process is technological change causing the optimum farm size to grow. The impact on price is to make farmers willing to pay more per unit for small farms, than for large or optimally sized farms. In effect, they must consider part of the cost of the incremental farmland as necessary to make their existing farms efficient. A straight forward solution would be to recognize that larger farms will sell for lower unit prices, holding other things constant, and set assessments accordingly. Alternatively, a crude but easier-to-explain solution may be to use some kind of so-called preferential assessment for farmland.

Homestead Exemptions and Circuit-Breakers

Illinois has responded to the alleged regressivity and excessive burden on the poor of the property tax with the homestead exemptions and a circuit-breaker program for the elderly and disabled.

The property tax has long been viewed as a regressive tax, a tax which takes proportionately more from lower-income families than higher-income families. Factors said to contribute to the regressivity include property ownership patterns of high and low income groups, assessment variations where high-value properties tend to be underassessed, and jurisdictional differences in the tax base relative to needs.

A general homestead exemption exempts some portion of assessed value from taxation. The Illinois exemption is applied against any increase in assessed valuation on single family residences since 1977. The amount of the Illinois exemption was increased from a maximum of $1,500 to $3,000 in 1980. The exemption applies only to owner-occupied principal residences. When originally instituted in 1977, it was the responsibility of the individual taxpayer to apply for the exemption. Since that time some assessors have applied it in a random manner to those residences where it is applicable even though no formal application was made. Homeowners who change their principal residence need not reapply if the home they purchased had an existing exemption. The Illinois homestead exemption for the elderly is in addition to the general homestead exemption. Homeowners 65 or over may apply for a $1,500 exemption against their assessed value.

Illinois also offers a circuit-breaker program which limits the amount of property taxes an individual has to pay to a percentage of his/her income. This program applies to the aged (over 65) and disabled with incomes under $12,000. Renters (over 65 or disabled with incomes under $12,000) may also apply under this program and use up to 25 percent of their annual rent payments as the amount of inferred property taxes paid. By including renters, the circuit-breaker differs from the homestead exemption. A sliding scale is used to determine the amount of property taxes paid that can be used as a credit against other state income taxes paid. In many cases a refund of property taxes paid is necessary.

A general circuit-breaker program in Illinois would offer many advantages over the present homestead exemptions combined with the limited circuit-breaker program. Property tax circuit-breakers are tax relief programs designed to protect family income from an excessive property tax burden. When the property tax bill (or the tax equivalent for renters) exceeds a set percentage of household income, the circuit-breaker goes into effect and relief is granted from the excess taxes. Thus, the circuit-breaker can turn a property tax into an income tax.

There are two basic types of circuit-breaker formulas: the threshold type and the sliding-scale type. Both of these are based on the ability-to-pay principle of taxation used in reducing the property tax burdens of low-income families. The threshold type sets a percent of *income* as

the maximum property tax, and the set percent usually increases with income. The sliding-scale type reduces property tax liability by a certain percent and that percent usually increases with income. The difference between these two types really boils down to how variations in tax liability are treated at any income level. With the threshold type there may or may not be relief at a particular income level. However, all taxed individuals at a given income would receive relief with a sliding scale.

Equalizing Assessments with Multipliers

Assessment practices should be equalized across assessment jurisdictions. Because taxing jurisdictions often overlap assessment jurisdictions, equalization can keep one assessment jurisdiction from subsidizing another. Equalized assessments also provide the state with information on tax efforts, which is useful in the distribution of state aid.

Illinois may achieve some degree of equalization via the use of multipliers. However, multipliers may also maintain or even create disparities in assessment. The same multiplier is applied to all property within an assessment jurisdiction. Thus, the multiplier system cannot correct for certain kinds of assessment bias. For example, it cannot correct for differential assessments across property types, value classes, and neighborhoods. Multipliers may create disparities in that they are biased against rapidly growing communities.

The distribution of state aid to schools is one of the more critical issues relating to equalization in Illinois. Equalization of assessed value per student for school districts is necessary to distribute aid for education on an equitable basis. The general structure of the school-aid formula results in more aid for property-poor districts and less aid for property-rich districts measured on a per-weighted-pupil basis. This leaves open the possibility that districts will under assess so that a larger portion of its school costs will be transferred to the state level. An equalization process, using a system of county multipliers, was set up through the Department of Revenue to remove the incentive to under assess and to insure an appropriate distribution of state aid. All property in the state of Illinois (except farmland) is to be assessed at 33.33 percent of market value. If the Department of Revenue calculates the county's ratio of assessments to market value at 28.98 percent then, a multiplier of 1.5 is used (33.33/28.98). The county multipliers therefore have a direct effect on the amount of state aid received.

The basic Illinois school aid formula is based on the districts' assessed valuation per student, the districts' operating tax rate and a state guaranteed assessed valuation per student. The formula has been further complicated by such issues as the type of school district, method for computing the districts' assessed valuation per student and alternative formulas for districts that exceed or do not meet certain levels in the formula. The basic school aid formula is: state aid per pupil = (state guaranteed assessed value per pupil − (minus) multiplier × (times) assessed value per pupil) × (times) operating tax rate. One of the most important issues for the local school district is to compute carefully its operating tax rate. For a unit district, if the tax rate is computed to be 2.18 or greater, the department of finance and reimbursement automatically uses the maximum rate allowed for the formula which is 2.83. If the district computes a rate less than 2.18, the computed rate is used in the formula. This results in a smaller amount of state aid. Therefore, this procedure gives the district an incentive to try to compute a rate as close to 2.18 as possible, without going under 2.18, in order to maximize their state aid.

The multiplier has the effect of increasing a district's assessed valuation per student, thus decreasing the amount of state aid received. An example using the Champaign school district will more clearly show the impact of the equalization system:

I. State aid with unequalized assessments:
   1. District assessed value per weighted student $290,000,000/9,300 = $31,180
   2. Operating tax rate 2.83 percent
   3. State guaranteed assessed valuation per weighted student is equal to $51,747
      state aid = ($51,747 − $31,180) .0283 = $582 per student
   4. Total state aid with a best six-month enrollment of 8,500 is equal to $4,947,000.

II. State aid with equalized assessments using multiplier of 1.15:
   1. District assesses valuation per weighted student ($290,000,000) (1.15)/9,300 = $35,860
   2. Operating tax rate equals 2.83 percent
   3. State guaranteed assessed valuation per weighted pupil is equal to $51,747
      state aid = ($51,747 − $35,860) .0283 = $559 per student
   4. State aid with 8,500 students is equal to $3,816,500.

The difference in state aid between the equalized assessments and the unequalized is $1,130,500. The conclusion that can be drawn from the above example is that it is very important that the correct multiplier be used in applying the state-aid formula if the appropriate amount of state aid is to be distributed and the tax burden fairly distributed.

The multiplier is derived from a sales-ratio study done at the state level. The yearly sales-ratio study is conducted by the Equalization and Standards Division of the Property Tax Administrative Bureau. The Real Estate Transfer Declaration form provides the data for the sales ratio study. A Real Estate Transfer Declaration form is completed for each real estate transaction.

The transaction is reviewed to insure that it was in fact an arms-length transaction. Transactions involving sales between relatives, personal property included in the sales price, land contracts, and certain types of deeds, are either adjusted for or dropped from the survey list. A ratio is derived relating the assessed value and the actual sales price for each transaction that is left in the survey. The county multipliers are based on a 3-year average of these ratios. Despite the above steps to insure an accurate study for the computation of the multiplier, several in-

equities exist which can bias their study and result in an unfair multiplier. Areas in which inequities may arise include accounting for items of personal property, excluding the sales of new homes, improperly computing sales/assessment ratios for vacant lots, and ignoring the impact of financing on selling price. The last three of these items cause the multiplier system to be biased against rapidly growing communities.

The lack of full disclosure of the value of personal property included in transactions causes multipliers to be biased upward. Personal property included with the real estate transaction is supposed to be reported on the sales declaration form. Often reporting is not complete and the sales price is left unadjusted. If personal property were included in the sale, this could have the effect of raising the selling price and creating the appearance of a larger discrepancy between sales price and assessed valuation than actually existed.

The exclusion of new homes from the sales ratio study causes multipliers to be biased upward. New homes are generally assessed at close to one-third of market value or above (depending on financing). They are not included in the state's survey because at the time of the assessment (the prior year) they are listed as vacant lots. By including only used homes, for which there is a greater tendency for under assessment, the sample will be assessed at lower ratios than is more generally the case. Overly large multipliers are the result.

The improper treatment of vacant-lot sales is another reason for overly large multipliers. The problem is similar to the one noted above in the discussion of farmland, the value of large parcels of urban land is lower per acre than the value of small parcels per acre. This means that the value per acre of a lot in a subdivision is greater than the value per acre of the entire subdivision. The holding costs, transaction costs, and normal profit involved in selling the individual lots causes the values to diverge. Therefore, it is completely improper in the sales-ratio study to use the ratio of a lot's proportionate assessed value in a subdivision to the lot's selling price. This ratio will systematically make it appear as if the lot had been under assessed and will, therefore, cause the multiplier to be biased upward.

During the past few years, certain types of financing have caused selling prices of real estate to diverge from market value. Failure to take this into account has led to overly large multipliers. Financing techniques have been extended to include assumptions, land contracts, seller-financed second mortgages, wrap-around mortgages, builder buydowns, and mortgage bond programs at below-market interest rates. It has long been recognized by appraisers that, to the extent that financing terms for real estate differ from the normal market terms, an adjustment is required in the sale price of the competitive property. That is, the selling price contains a premium for the special financing terms. Empirical studies have confirmed that when below-market rates of interest are involved in the transaction, the advantage of a lower-than-current interest rate is capitalized into a higher selling price. Despite the increased usage of alternative financing techniques, the sales ratio study makes no adjustment for the type of financing involved in the transaction. This has created an illusion of a larger discrepancy between market value and assessed value than actually exists.

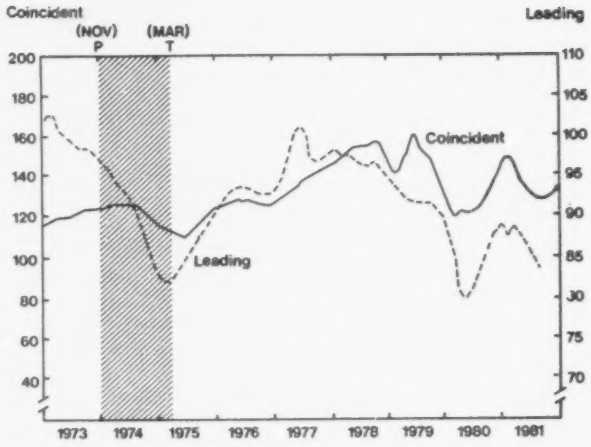
Conclusion

Recent property tax issues in Illinois have centered around public reaction against the property tax. Sources of this reaction include rising property taxes and perceived inequities across property types, income levels, and assessment jurisdictions. In response, property tax relief has been offered to various groups. The Illinois Farmland Assessment Act, the General Homestead Exemption and Circuit-Breaker Programs, and the increased emphasis on multipliers are all attempts to make the property tax a more equitable source of government revenue. These responses to the public criticism of the property tax system are evidence of diverse treatments of assessment disparities. The supposedly preferential farmland assessment may actually be necessary to equalize assessment. At the other extreme, explicit efforts at equalization via the application of multipliers may actually produce disparities in assessment. Finally, the use of homestead exemptions and circuit-breakers intentionally introduce disparity into assessment in order to accomplish other purposes.

Leading Economic Indicators

Despite the cold winter weather, the Illinois economy seems to have performed well. The coincident indicator advanced to 135.4 in January from the 136.7 figure posted in December. Unfortunately, this bit of news is based on preliminary information, and there is reason to believe that once revisions are introduced, the composite index will reflect the thought that the January freeze chilled the Illinois economy as well as its residents.

As the result of cut-backs in funds allocated for data collection at the national level, the Bureau of Economic and Business Research will be unable to obtain the necessary data from the federal government in order to publish the leading indicator series. The Bureau regrets any inconvenience this temporary suspension may cause our readers.



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BEA County Data for Illinois, 1974–79

County sets for Illinois are available from the US Bureau of Economic Analysis for personal income, employment, farm income, and transfer payments for the years 1974 to 1979. The personal income and the employment tables replace tables for 1973 to 1978, dropping 1973, adding 1979, and revising the figures for 1977 and 1978. Farm income and transfer payments tables supersede sets for 1969 to 1977 and 1972 to 1977 respectively. The 1978 and 1979 numbers are new, while those for 1976 and 1977 have been revised.

Personal income, employment, and transfer payment sets include pages for each Standard Metropolitan Statistical Area. Charge is $20 for each of the four sets of all counties to cover reproduction and handling charges. Combined sets of old and new tables are $25 each. Individual pages are $1 each with a $5 minimum charge.

Two sets of Illinois statewide personal income are available: detailed components of Illinois personal income (intermediate table) 1958–79; and Illinois personal income by major source and earnings by 2-digit SIC, 1958–79. Charge is $5 for each set.

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Illinois Business Indexes

Index	January 1982	December 1981	November 1981	October 1981	January 1981
Leading indicator (1969=100)	n.a	n.a	n.a	82.40	88.31
Coincident indicator (1969=100)	138.4	136.7	133.6	131.0	146.5
Employment-manufacturing (in thousands)	1122.4	1143.5	1156.0	1171.4	1179.2
Average weekly hours-manufacturing	38.6	40.1	40.0	40.0	40.1
Weekly earnings-manufacturing	$357.44	$371.33	$367.60	$366.00	$345.66
Layoff rate-Chicago	n.a.	n.a.	0.9	1.2	1.2
Help wanted Advertising-Chicago (1967=100)[a]	56.0	63.0	63.0	59.0	66.0
Help wanted Advertising-St. Louis (1967=100)[a]	46.0	49.0	42.0	52.0	58.0
Ordinary life insurance sales (in millions)	n.a.	$2,410	$1,869	$1,902	$1,385
Retail sales (in millions)[b]	$4,101	$5,512	$4,497	$4,474	$3,712
Coal production (in thousands)	5,229	5,738	5,124	6,224	5,710
Petroleum production (in thousands)	2,140	2,139	2,025	2,132	1,965
Vendor performance seasonally adjusted (percent)	32.5	30.0	34.7	39.4	49.7
Buildings permits (in thousands)					
Residential housing units	.32	.75	.98	1.25	.74
Value of residential housing	$13,346	$37,158	$49,026	$61,415	$32,386
Value of nonresidential construction					
Industrial buildings	$14,769	$21,454	$19,035	$27,883	$11,458
Office, banks, and professional buildings	$18,449	$26,003	$29,125	$44,407	$37,267
Stores and other mercantile buildings	3,446	6,966	11,427	14,533	11,269
Other	12,669	19,132	20,409	35,440	60,169
Consumer price index					
North Central US	-	150.3	-	149.8	-
North Central/population more than 400,000	-	152.6	-	152.6	-
North Central/population 385,000 to 1,250,000	-	149.2	-	148.8	-
North Central/population 75,000 to 385,000	-	147.4	-	145.9	-
North Central/population less than 75,000	-	147.6	-	146.7	-
Chicago	275.4	273.9	277.0	276.1	258.8
St. Louis	278.4	-	273.8	-	255.7
Prices received by farmers	105.0	109.0	110.0	113.0	132.0

[a]Source: The Conference Board, *Help Wanted Advertising*, January 1982

[b]Most recent month projected by BEBR (not available)

	1981:III	1981:II	1981:I	1980:IV	1980:III
PERSONAL INCOME IN ILLINOIS[2] (in millions of dollars)					
PERSONAL INCOME by place of residence	$ 35,946	$132,031	$128,645	$125,688	$123,234
TOTAL LABOR AND PROPRIETORS' INCOME					
by place of work					
by type					
Wage and salary disbursements	84,789	83,045	81,039	79,180	77,336
Other labor income	9,067	8,867	8,575	8,381	8,254
Proprietors' income	6,852	6,610	6,614	6,552	6,620
Farm	889	634	631	635	914
Nonfarm	5,963	5,976	5,984	5,918	5,706
by industry					
Farm	1,337	1,074	1,056	1,053	1,328
Nonfarm	99,372	97,448	95,172	93,061	90,882
Private	86,645	85,376	83,368	81,397	78,973
Ag. ser., for., fish., and other	217	218	220	206	207
Mining	1,003	698	967	951	885
Construction	5,246	5,567	5,562	5,473	5,198
Manufacturing	29,921	29,380	28,112	27,379	26,610
Nondurable goods	9,399	9,255	8,804	8,554	8,604
Durable goods	20,522	20,125	19,308	18,825	18,005
Transportation and public utilities	8,077	8,014	7,916	7,724	7,475
Wholesale trade	8,575	8,418	8,233	8,124	7,868
Retail trade	9,254	9,056	8,958	8,656	8,514
Finance, insurance, and real estate	6,704	6,614	6,472	6,416	6,245
Services	17,648	17,411	16,926	16,467	15,972
Government and government enterprises	12,727	12,072	11,804	11,664	11,909
Federal, civilian	2,300	2,292	2,260	2,189	2,146
Federal, military	636	666	662	642	550
State and local	9,791	9,115	8,881	8,833	9,213
INCOME BY PLACE OF WORK					
Wage and salary disbursements	84,789	83,045	81,039	79,180	77,336
Farm	401	393	381	375	370
Ag. ser., for., fish., and other	136	136	138	126	128
Mining	777	527	748	737	683
Construction	4,457	4,692	4,669	4,587	4,388
Manufacturing	25,694	25,229	24,161	23,525	22,827
Nondurable goods	8,150	8,025	7,638	7,420	7,452
Durable goods	17,545	17,204	16,523	16,105	15,375
Transportation and public utilities	6,808	6,757	6,684	6,520	6,297
Wholesale trade	7,443	7,301	7,132	7,045	6,834
Retail trade	7,738	7,574	7,468	7,239	7,119
Finance, insurance, and real estate	5,353	5,258	5,149	5,037	4,900
Services	13,653	13,484	13,069	12,686	12,256
Government and government enterprise	12,329	11,696	11,439	11,303	11,533
Federal, civilian	2,200	2,192	2,163	2,094	2,052
Federal, military	636	666	662	642	550
State and local	9,493	8,838	8,614	8,567	8,932

[1]The Conference Board, *Help Wanted Advertising*, April 1981. [2]Most recent month is a BEBR estimate.
[3]Bureau of Economic Analysis, *Major Sources of Personal Income in Illinois*, April 1981.

Comments on "The Oil Crisis: A Case of American Underdevelopment" by F. Dovring

DONALD C. BOND

Growing concern regarding this nation's ability to meet its energy needs has encouraged debate from all quarters. The rise in the relative price of energy has sent shock waves throughout the whole economy. It is not surprising, therefore, that the debate has attracted comment from many professional disciplines, with each discipline offering a valuable perspective. But such comments need to be reviewed critically.

I recognize that those of us who have spent our professional careers in energy-related disciplines clearly do not own the subject matter — we have no proprietary rights. Indeed, there are times when "... we may not see the forest for the trees." Even so, we can say that the newcomer who lacks first-hand experience must recognize that the energy field — especially the oil industry — is quite complex. Lack of understanding of important technical fundamentals can lead otherwise competent researchers to false premises. And such researchers can, in turn, give the reader a picture of the energy problem that is incomplete and inaccurate.

A case in point concerns a potential source of oil called residual oil. Residual oil refers to the oil that remains in a reservoir after the cessation of economic production by conventional methods. It is my view, widely shared by others who have experience in oil production research and in field operations, that residual oil will account for an important share of domestic oil production over the next few decades. However, Professor F. Dovring, in the April 1981 issue of the *Illinois Business Review*, presents a contrary viewpoint; that is, that little residual oil will ever be produced.

My purpose here is to point out certain errors and misconceptions in Professor Dovring's paper that provide grounds for questioning the validity of his conclusions. I make these criticisms because his article reveals a lack of knowledge about the occurrence of oil and the nature of oil-producing processes — his assumptions about residual oil are essentially naive and false.

Residual Oil

Dovring purports to prove that little residual oil will ever be produced. For example, he says: Page 2, Column 1: "Secondary and tertiary oil layers (sic) are generally estimated at being more than twice the amount of oil already extracted, but only a small fraction of this is believed extractable by any known technology, even at very high oil prices" and "Production-radical optimism also points to vast amounts of oil still in the ground, in oil fields. This is a misunderstanding: most of the 'oil in place' is not an economic reserve."

It is true that much of the 300 billion barrels of residual oil in known US oil fields is not an economic reserve. But one cannot dismiss, with a wave of the hand, the volume of residual oil that is now being produced — and will continue to be produced for many years.

Residual oil is being produced, and will be produced, as a result of: (1) certain types of drilling — infill drilling (drilling of wells in the spaces between old, depleted wells), edge drilling (drilling of wells around the periphery of reservoirs), and recompletion of wells (opening up zones that were passed up when the wells were originally drilled); and (2) enhanced recovery methods[1] — thermal, carbon dioxide, and micellar (surfactant), polymer and other chemical floods.

Development Drilling

Oil produced by infill and edge drilling and recompletions is part of the 300 billion barrels of residual oil. Such reserves are not included in the American Petroleum Institute reserve statistics. Probably the oil production from such development drilling will be comparable with the amount of oil produced by enhanced recovery methods. Some informed people even say that infill drilling is the best method that we have for recovering residual oil.

Consider for example the history of oil production in Illinois. In the late 1960s and early 1970s, Illinois production dropped about 10 percent each year. In the mid-1970s production leveled off, but in 1980 and 1981 production increased 5 percent and 8 percent, respectively. Since no large reservoirs have been discovered, how do we account for this increased production? The turnaround has been caused almost entirely by the upsurge in development drilling — about five times as many wells are being drilled as before and residual oil is being extracted that formerly could not be produced economically. This is not "production-radical optimism." It is real, liquid residual oil that has been gauged in the stock tank and pumped to the refinery. (See, for example, *Illinois Petroleum 120, Illinois State Geological Survey*, and similar official production records.)

Illinois's oil industry is a microcosm of the US oil industry: its experience is being duplicated in every oil-producing state (*Oil and Gas Journal* [*OGJ*], 19 October 1981, pp. 113–17). The surge in development drilling has resulted in the production of large amounts of residual oil. And the volume of residual oil that remains is so large that production from infill drilling and other efficient methods can be maintained at present levels for many years.

Tertiary Recovery

Now let us look into some of Professors Dovring's

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ideas about the production of residual oil through the application of tertiary recovery processes. Page 2, Column 1 — Dovring speaks of "secondary and tertiary oil *layers*." Later (Page 3, Column 1) he speaks of "secondary and tertiary oil *strata*."

To speak of tertiary oil layers or strata, with respect to oil production, is naive. Tertiary oil exists in *all* oil reservoirs; tertiary oil is the oil that is left in the reservoir at the end of primary (usually pressure-depletion or solution-gas drive) and secondary (usually waterflooding) operations. The depth of the reservoir has nothing to do with the classification of oil as primary, secondary, or tertiary oil.

With respect to the occurrence of tertiary oil, Dovring says, Page 3, Column 2: "Most of the tertiary oil is heavy." Dovring is confusing present production with the total residual oil. It is true that much of the present tertiary (enhanced recovery) *production* (77 percent) consists of heavy oil, mostly in California. But heavy oil comprises only about 25 percent of the total amount of residual oil expected to be produced by enhanced recovery.

Dovring thinks that heavy oils are found in deep reservoirs. "At some depth, the oil cost of heavy oil will reach 100 percent."[2] As a matter of fact, little or no heavy oil is found in deep resevoirs. At depths between 10,000 and 15,000 feet, the proportion of gas to oil increases rapidly; the oil that is found is commonly very light, similar to gasoline and kerosene (*Bulletin American Association of Petroleum Geologists,* January 1981, pp. 5–25). Below 15,000 feet little or no oil of any kind is found.

Dovring has made a serious error in logic here. He has extrapolated a small amount of information about heavy oil in California and applied it to deeper reservoirs, where there is no heavy oil. Further, he has expanded his faulty conclusion to cover the rest of the United States, where relatively little heavy oil is found. Most current US exploration activity is aimed at the discovery of natural gas and oil that is producible by conventional methods; this activity is concerned with heavy oil to only a small degree. Furthermore, much of the current expansion in enhanced recovery is in the use of surfactants and carbon dioxide, not just steam alone (as implied by the author).

After convincing himself that enhanced (tertiary) recovery is not possible economically, Dovring says, Page 3, Column 1: "Of enhanced secondary and tertiary recovery there are few traces."

In 1980 about 4.5 percent of US oil production came from enhanced recovery (*OGJ,* 31 March 1980, pp. 79–124). Most of this enhanced recovery resulted from the injection of carbon dioxide or from alternate steam injection and production ("HUFF 'N PUFF").

Dovring is not informed about current enhanced recovery activity. A total of 426 projects have been certified by DOE, under the 1980 Energy Act. These are not pilot tests. They are full-sized field projects ranging in cost from a few million to billions of dollars. Many of these projects are already well underway. Here are a few examples: (1) Marathon has operated a $55 million surfactant project at Robinson, Illinois, for several years. This project will recover several million barrels of oil (*DOE/BETC/IC80/3,* Vol. 2). (2) Shell is starting a $1.6 billion CO_2 project in Wasson field, West Texas, expected to recover 280 million bbl. of oil (*OGJ,* 27 July 1981, p. 126). (3) Shell and its partners are starting to build a CO_2 pipeline from Colorado to West Texas. The pipeline, with the CO_2 producing wells, will cost $1.6 billion. The pipeline will carry 2 billion cubic feet of CO_2 per day. (For comparison, the city of Chicago and its suburbs use about 2 billion cubic feet of natural gas on an average day.) (*OGJ,* 25 March 1981, p. 123.) (4) Texaco has begun a $100 million CO_2 injection project in the Paradis Field, LA, expected to recover 3.6 million bbl. of oil (*OGJ,* 21 September 1981, p. 79). (5) Conoco is starting a $20 million CO_2 injection project in Reeves and Culberson counties, West Texas, later to be expanded greatly (*OGJ,* 23 March 1980, p. 229). (6) The Rocky Mountain CO_2 Company is planning a pipeline to carry 250 million cubic feet of CO_2 per day from Wyoming to Montana and South Dakota, for use in oil recovery (*OGJ,* 3 August 1981, p. 60), and (7) Amoco has started a $1.5 billion CO_2 production and injection program for oil recovery (*OGJ,* 17 November 1980, p. 48).

These are only a few examples, picked up in a casual scanning of oil industry journals. Eighteen months ago a review of tertiary recovery activity took up more than 40 pages (*OGJ,* 31 March 1980, pp. 79–124). The results of the next biennial survey, scheduled to appear in April 1982, will be very lengthy indeed. Dovring has not looked into the subject very deeply — otherwise, he would not say "of enhanced secondary and tertiary recovery there are few traces." After considerable discussion of deep, heavy oil, which he falsely equates with all tertiary oil, Dovring says, Page 2, Column 2: "The conclusion still stands: in economic terms, most of the tertiary oil is not there; counting on it in practical policy will court disaster."

Concluding Remarks

In the next ten to twenty years, many billions of dollars will be spent on various tertiary recovery processes. If this money is spent wisely, billions of barrels of residual oil will be recovered.

The consensus of a number of detailed surveys gives totals like these:

	Ultimate recovery billion bbls.
Thermal methods	10
Carbon dioxide	10
Micellar (surfactant) and polymer	10
Other chemical floods (polymer, caustic, etc.)	3
TOTAL	33

This is not "production-radical optimism." Rather, it is the conservative estimate of scores of experts with many years of experience in oil production research and

field operations. (See, for example, Gulf Universities Research Consortium Report No. 148, "Preliminary Field Test Recommendations and Prospective Crude Oil Fields or Reservoirs for High Priority Field Testing," February 1976, or Lewin and Associates, Final Report for FEA, "The Potential and Economics of Enhanced Oil Recovery," April 1976.)

In the next twenty years or so the production of residual oil — by means of infill drilling and the application of tertiary recovery processes will account for 10–20 percent or more of our oil production. Ultimate production of residual oil will be at least equal to our present reserve of producible oil.

The production of residual oil alone is not a long-range solution to all of our oil supply problems. But the production of residual oil will satisfy a substantial part of our oil needs for many years.

Ill-founded pronouncements like "in economic terms most of the tertiary oil is not there" and "of enhanced recovery there are few traces" may confuse some casual readers. But the serious student of the oil supply problem will look into basic sources of information — such as those that have been cited here — and make his own evaluation.

If Professor Dovring's paper were an isolated case, we might dismiss it as being of little consequence. But, sad to say, his analysis is only one example. Far too many academic people — lacking first-hand experience with oil and other forms of energy — publish research results that bear little relation to the real world of geology and engineering. The public deserves to be better served. The expert should first inform himself, before he attempts to inform others.

Notes

1. For our purposes "enhanced recovery" and "tertiary recovery" may be considered to be synonymous, although technically they do not have the same meaning.
2. The depth limitations of present steam recovery processes will be greatly expanded, or eliminated, by new technology that has been developed, such as the use of down-hole steam generators.

Oil Crisis and Vested Interest

FOLKE DOVRING

Dr. Bond's attack on my article of a year ago (*Illinois Business Review*, April 1981) concentrates on residual oil. Despite his disapproval of the expression "production radical," he leaves out the question of new discovery. This is prudent, for new discoveries which so many geologists believed in until recently are now recognized as being of low potential in the United States.

The critique of my article in regard to residual oil is one-sided and misleading. Finding fault with my use of technical terms and some selected interpretations cannot conceal the double facts that my main conclusion is correct and that Dr. Bond's estimates are conjectural. What I pointed to is the existence of marginal conditions in residual oil recovery. There are of course many kinds of marginal conditions. The precise proportions between these marginal cases are less important than the prevalence of such marginal conditions, which is evident from production statistics and cost data and, indirectly, also from Dr. Bond's comment.

Using development (e.g., infill) drilling and enhanced (tertiary) recovery methods, Dr. Bond expects production of residual oil to be "at least equal to our present reserve of producible oil." This would be about 30 billion barrels, or one-tenth of the estimated 300 billion barrels of residual oil "in place." Such an estimate is only one-half of what Dr. Bond expected in a previous draft of his article. According to that draft, he anticipated 33 billion barrels from enhanced recovery alone and a similar quantity from development drilling. The former figure has been used by other geologists quite recently. Reducing expectation by one-half is a strong admission of uncertainty. It is far from justifying the political rhetoric of the 1980 election campaign or the policies currently based on the assumptions of that rhetoric.

But even this scaled-down estimate may well be too optimistic. A report from the Rand Corporation (by Richard Nehring and E. R. Van Driest, January 1981) estimates reserve growth by both development drilling and enhanced recovery to be in a range from 17 to 72 billion barrels, with 90 percent probability of exceeding the lower bound and 10 percent probability of exceeding the upper one. Dr. Bond's conjecture is still some distance above the 90-percent-probable estimate in the Rand report.

None of these figures needs to be taken as hard evidence. They illustrate a wide range of disagreement and uncertainty. "Percent probability" is also widely misunderstood. The probability of one of these estimates of recoverable oil coming true is in fact similar to predicting the weather in a coming winter based on something like 70 percent probability. The chance that this particular winter may be unusual is really not to be predicted — it is indeterminate. So, also, is the chance of reaching some estimated level of oil production based on percent probability.

After Dr. Bond's comment on the large production picture, his remarks on details are an anticlimax. For instance, Illinois has increased its oil production by 10

Professor Folke Dovring, a former UN official, teaches land economics and economic development in the Department of Agricultural Economics, UIUC. His research and publications include institutional economics, development dynamics, productivity, and natural resource economics.

percent in 2 years by development drilling alone, without any major new discovery of oil. But since Illinois contributes about 1 percent of the nation's domestic oil production, its 10 percent increase adds only .1 percent to domestic oil production. Saying that "Illinois's experience is being duplicated in every oil-producing state" is misleading if it is read to mean that development drilling has led to larger oil production nation-wide. It has not: total oil production in this country in 1981 was 1 or 2 percent less than in 1980, and January 1982 produced no more than January 1981 (*Petroleum Economist*, January 1982, and *Oil Daily*, 24 February 1982).

To contradict me on tertiary oil recovery, Dr. Bond lists seven projects which will use the injection of CO_2. Only the first — a small one — appears to be producing, the rest are still projected undertakings, not producing projects. To date there has been little tertiary production other than by steam. The only thing that is impressive about these projects is their costs; prospective production is mentioned in only three of the seven, and these figures are far from impressive.

There is one more reason to be wary of information of such a conjectural nature. Many projects do not stay within their advance cost estimates. At completion, the Alaskan pipeline cost several times the original estimate. The $50 million oil rig which sank off Newfoundland recently had apparently been built on insufficient cost. The ongoing investment boom in oil in this country yields, by all indications, a low rate of oil production in proportion to the outlay.

The subsequent statement that "In the next twenty years or so the production of residual oil . . . will account for 10–20 percent or more of our oil production" sounds curiously like a prediction, when in fact we are already there, if the refinery statistics can be trusted. Data published in *The Petroleum Situation* (Chase Manhattan Bank) from September 1977 to January/February 1981 show "stripper" oil as 11.5 percent in September 1976 (at which time such oil already sold at world market prices) and over 22 percent in December 1980. At the latter time, decontrolled heavy oil amounted to even more — over 27 percent. "Tertiary" oil, reported separately since mid 1979, accounts for only small amounts of oil production — in late 1980, it barely exceeded 1 percent of refinery supply from domestic sources, confounding Dr. Bond's 4.5 percent. What happened to the rest? If it were burnt in the oil fields it is not relevant to final supply.

But maybe we cannot trust the refinery statistics which give us oil categories as price-classes. How much manipulation took place in order to speed up de facto decontrol is anyone's guess. In any event, the claim made for stripper oil has already been cashed in, it is part of current production. How many years that may continue is another matter. Here, as in other cases, Dr. Bond's view is based on conjecture, not on hard fact.

Dr. Bond ends his polemic with a plea for more technical knowledge among writers on energy. The geologist's own record of conflicting estimates is not encouraging others to get into the intricate details of their arguments; and economic outcomes can usually be registered without that. For my part, I see no reason to apologize, for I have not over-drawn my evidence. The conclusion still stands that we have no assurance of continued long-term safe petroleum supply beyond 1990 when international sources can be expected to contract (see *Petroleum Economist*, March 1982, pp. 82–3).

Dr. Bond, by contrast, does not use his expertise judiciously when he advises us to base the future of the country's energy policy on conjecture. For a matter as basic as energy, probability is not good enough. His lifetime of service to the oil industry, and continued interest in consulting work, may have made him partisan to the point where he is less than clear-sighted in the matter of vested interest and how it can influence his thoughts.

PUBLICATION CHANGES

Please note that the *Illinois Business Review* is now being published bimonthly — February, April, June, August, October and December. We have had several inquiries from subscribers who thought their names had been dropped from the mailing list or whose issue was lost in the mail. The reduction in the number of issues has been necessitated by rising costs and shifting of budgeted state funds away from the University of Illinois. In order to continue our high level of quality we have been forced to publish less frequently. We regret having to take these steps but feel we have followed the only course open to us.

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Economic Expansion, Interest Rate Declines, or Hopes?

WILLIAM R. BRYAN

There are two series of questions that dominate conversations relating to the economy. The first questions concern the recession: When will it end? When will economic expansion begin? Can we expect a vigorous recovery and a sustained period of growth? The second series of questions relates to interest rates: Which direction are interest rates likely to move? If they are going to decline, when will that decline begin, and how far are rates likely to fall?

Clearly these are not new questions, and the answers are neither new nor clear cut. It is my view that, barring new shocks, the recession is nearly over. Developments have already begun that typically presage renewed economic expansion. As I have argued in earlier issues of this *Review*, interest rates are going to continue to fall. They have been held up by two sets of factors. The first is a perfectly sensible combination of investor considerations. The second is a wrong-headed view of the impact on interest rates of the prospective federal deficit.

The 1981–1982 Recession

The 1981–82 recession has been superimposed upon a period of weakness beginning in early 1979. Thus, our concern regarding a lackluster economy is more than three years old. Even before the recession, economic activity had stalled. From the first quarter of 1979 to the third quarter of 1981, overall output of the economy rose at a puny 1-percent annual rate. In the preceding three years, real GNP — that is, gross national product adjusted for inflation — expanded at just under a 5-percent rate.

The recession has been severe. Since the third quarter of last year, real output has fallen at a 4.2-percent annual rate. The industrial sector of the economy has declined even more rapidly. Since July, industrial output has declined at more than a 12-percent rate. Reflecting the decline in production, employment has shrunk at just over a 2-percent rate, and unemployment has risen to 9.4 percent — the highest since World War II.

Consumer spending has slowed since mid-1981. It is probable that consumers have been shaken by uncertainties relating to their jobs. In addition, it is likely that spending on credit-supported durables — such as automobiles and major household appliances — has been adversely affected by unusually high interest rates. Whatever the cause, retail sales have been essentially flat since July 1981. Moreover, if retail spending is adjusted for price increases, the actual physical volume of goods sold has declined at more than a 5-percent rate.

The principal useful development associated with the recession has been the moderation in inflation. Consumer prices, which rose at a double-digit rate for more than three years prior to mid-1981, have edged upward at just over a 3-percent rate since July 1981. Producer price inflation began slowing in the spring of 1981.

But the 1981–82 recession has moved to a new phase. The early phases of recession are typically marked by a weakening in so-called "final" purchases — that is, spending for final use by the major sectors in the economy. As this occurs, businesses accumulate inventories — sometimes referred to as "unwanted" inventory growth. More recently, final spending has begun to expand. But the spending is serving to reduce inventories, rather than to spur additional production. Such a state of affairs will not continue for long, unless the economy is hit by a new adverse shock — such as a tax increase.

The Long-Awaited Decline in Interest Rates

Most interest rates have declined since the late summer or early autumn of last year. Even so, they hang

Predicting Residential Energy Consumption
By Robert Herendeen and Cindy Jacobs / *Page 4*

Seasonal Adjustment of Economic Data *By Phillip A. Cartwright* / *Page 9*

tenaciously near their historic highs. Short-term rates have drifted generally lower. Yields on 90-day certificates of deposit have fallen from roughly 18 percent in August of last year to the 14–15 percent range in recent months. Over this same period, US Treasury bills have declined from about 15.5 percent to the 12–13 percent range. Intermediate-term US Treasury securities (3–5 years) have fallen from 16 percent last September to about 14 percent. There have even been rate declines in long-term US Treasury bonds — from over 14 percent last September–October to the 13–13.5 percent range in the past few months.

Other interest rates have edged higher, or remained essentially unchanged. Yields on corporate bonds are generally higher than prior to the onset of the 1981–82 recession. In July 1981, interest rates on Moody's Aaa and Baa graded corporate bonds averaged 14.38 percent and 16.17 percent, respectively; in the weeks just prior to this writing (the early weeks in May) these same rates averaged about 14.25 percent and 16.60 percent, respectively. Mortgage interest rates along with associated fees and charges have inched higher throughout the recession. Beyond that, the conventional mortgage is essentially "dead in the water," at least temporarily replaced by balloon notes, or other stop-gap offsprings of "creative financing."

While it is clear that interest rates have generally drifted lower in response to weakened credit demands, why have they failed to decline in a meaningful fashion? Why do rates remain so high by historical standards?

There are at least two sets of factors operating against substantial declines in interest rates. The first relates to the continued strength of inflationary expectations. Although the observed rate of inflation has moderated markedly in recent months, there is a lingering fear that renewed inflation lies in the future. Indeed, the recession itself and the resulting calls for antirecession action serve to undermine belief in long-term price stability. There is strong and mounting political pressure to respond to the needs of those bearing the burden of the recession. As these pressures mount there is the associated frustration that "Here we go again!"

Some analysts agree that long-term interest rates are being held up by long-term inflationary expectations, but argue that short-term interest rates should respond more rapidly to changes in the short-term inflation outlook. Why have short-term (one year or less) interest rates not registered a dramatic decline in line with the decline in actual, or measured, inflation? The answer, I believe, is a technical one. It is readily understandable to large financial investors — who are playing a dominant role in the current setting, but tricky to the lay reader. The reasoning runs as follows: Long-term inter-

Chart 1

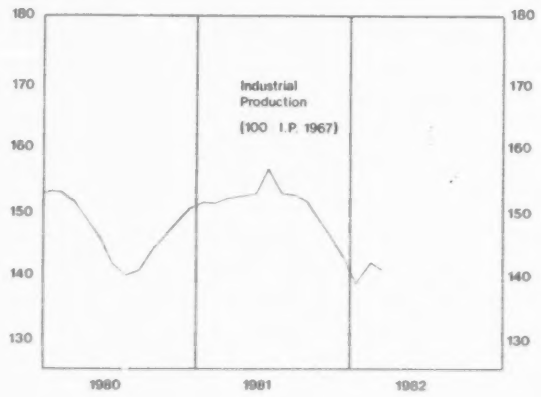


Chart 2

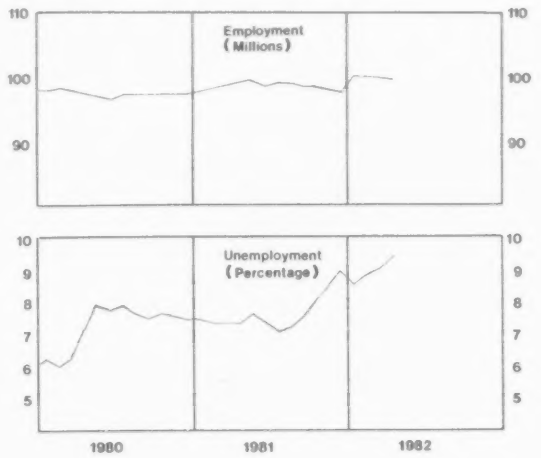
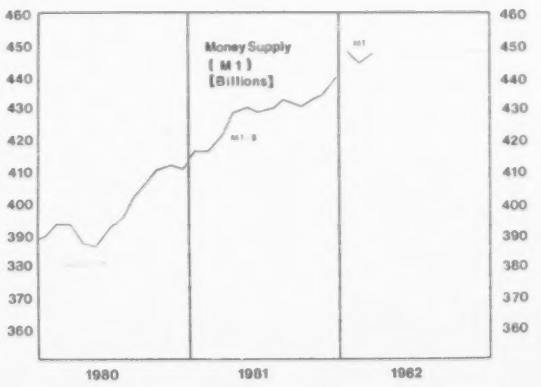


Chart 3



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est rates are being supported by inflationary expectations, but they are being pushed lower by the weak economy. On balance, the latter force is dominant; hence, the risk of capital loss in long-term investments is minimal. As a consequence, rate-conscious short-term investors are not forced to accept sharp declines in interest on short-term debt instruments (for example, Treasury bills, C.D.'s, etc.). Forces of what economists refer to as *arbitrage* are transmitting long-term inflationary expectations into the short-term market.

The second factor operating against interest-rate declines is the delay in bringing the federal budget process to its conclusion. The uncertainties regarding the size of the deficit implied by the budget package and threats of increased taxes create the impression that there is something for which financial markets must wait. There is new, potentially adverse, information to be evaluated. There is also the factually unsupported view that a large, or rising, federal deficit leads to higher interest rates. Setting aside the economic merit of the inchoate mass of opinion, fear, and speculation regarding the federal deficit, its short-run effect is to retard the downward movement of interest rates.

In the meantime, monetary-policy actions continue to be moderately expansive. The Federal Reserve System has expanded the monetary base at more than an 8-percent annual rate since last October, and nearly 6 percent over the past year. The money supply has expanded at more than a 9-percent rate since October.

Conclusion

The presumptions underlying this analysis and its forecasts — an expanding economy and declining interest rates — are not unlike those associated with so-called Reaganomics. What must be borne in mind by those of us who attempt to interpret economic developments is that we may be wrong. There are easy and difficult aspects to being wrong. Frequently, the economy takes turns that were unexpected — or fails to take turns that were expected. This is easy wrongness. It is easy to recognize; often it is easy to explain. The hard part about being wrong is to recognize a bad set of presumptions. Too often, our presumptions get tied to our hopes, and these are hard to change.

If Reaganomics turns out to be wrong, the potential cost to the economy — and to major portions of the population — can be severe. It is reasonable to fear that we will be slow to respond to signs of collapse, hoping that "prosperity is just around the corner."

Illinois Business Indexes

	March 1982	February 1982	January 1982	December 1981	March 1981
Coincident indicator (1969=100)	109.2	113.3	119.2	127.2	147.2
Employment-manufacturing (in thousands)	1055.8	1064.3	1122.4	1143.5	1177.9
Average weekly hours-manufacturing	39.2	39.5	38.6	40.1	40.1
Weekly earnings-manufacturing	$ 362.21	$ 364.98	$ 357.44	$ 371.33	$ 350.88
Help wanted advertising-Chicago (1967=100)[a]	48.0	51.0	56.0	63.0	70.0
Help wanted advertising-St. Louis (1967=100)[a]	40.0	39.0	46.0	49.0	54.0
Ordinary life insurance sales (in millions)	$ 2,188	$ 1,839	$ 1,647	$ 2,410	$ 1,857
Retail sales (in millions)[b]	$ 4,200	$ 3,614	$ 3,661	$ 5,186	$ 4,237
Coal production (in thousands)	6,498	4,833	5,229	5,738	5,489
Petroleum production (in thousands)	2,249	1,613	2,140	2,139	1,960
Vendor performance, seasonally adjusted (percent)	31.2	34.0	32.5	30.0	47.0
Building permits (in thousands)					
Residential housing units	.67	.52	.32	.75	1.88
Value of residential housing	$ 35,773	$ 21,606	$ 13,346	$ 37,158	$ 87,132
Value of nonresidential construction					
Industrial buildings	$ 15,797	$ 8,283	$ 14,769	$ 21,454	$ 13,341
Office, banks and professional buildings	$ 38,908	$ 20,787	$ 18,449	$ 26,003	$ 33,078
Stores and other mercantile buildings	$ 10,156	$ 4,810	$ 3,446	$ 6,966	$ 26,710
Other	$ 19,242	$ 26,881	$ 12,669	$ 19,132	$ 61,720
Consumer price index					
North Central US	-	152.1	-	150.3	-
North Central/population more than 400,000	-	153.6	-	152.6	-
North Central/population 385,000 to 1,250,000	-	151.9	-	149.2	-
North Central/population 75,000 to 385,000	-	149.1	-	147.4	-
North Central/population less than 75,000	-	151.0	-	147.6	-
Chicago	276.4	274.9	275.4	273.9	259.8
St. Louis	280.7	-	278.4	-	259.2
Prices received by farmers	109.0	110.0	105.0	109.0	131.0

	1981:IV	1981:III	1981:II	1981:I	1980:IV
Personal income (in millions)	$135,139	$133,616	$129,613	$127,892	$125,688

[a]The Conference Board, *Help Wanted Advertising*, March 1982. [b]Most recent month is a BEBR estimate.

Predicting Residential Energy Consumption: A "Physical" Approach

ROBERT HERENDEEN and CINDY JACOBS

Most of the energy consumed in Illinois residences is supplied by regulated utilities. Forecasting energy requirements is therefore especially critical since the supply-demand equilibrium may be unstable. If too much electrical capacity is built, the price of electricity must increase to allow the utilities their guaranteed rate of return. This increased price tends to reduce electricity sales, causing even more overcapacity, requiring higher prices, and so on. This instability is increased by the rapid rise in the marginal cost of energy (new power plants, new gas wells).

Traditionally, econometric-forecasting methods have been used. Typical independent variables (upon which electric energy use is regressed) include gross state product, per capita income, price of electricity, price of gas (a competing fuel), and a number of residential customers. On the other hand, there are a number of physical data which seem important and yet do not appear explicitly in many econometric approaches. For example: (1) The average home refrigerator sold in 1981 uses 31 percent less energy than the average one sold in 1972; that is, its (physical) efficiency has increased. For freezers, the comparable figure is 41 percent, for air conditioners, 11 percent. (2) There is strong evidence indicating that air conditioner saturation (average number of units per household) has leveled off in northern Illinois.

In principle this information can be incorporated into an econometric model by the use of lagged variables. These hopefully account for the fact that the price of electricity for the next 10 years, say, will influence a consumer's decision about how efficient a refrigerator to buy when his present one dies a natural death in 1993.

Another approach, which accounts explicitly for energy-efficiency changes, is a physical forecast in which the basic idea is that a household's total energy use can be built up from the energy use of individual devices. Among the typical independent variables are a number of households, appliance saturation levels, energy use per unit, appliance lifetime, and thermal tightness of residence.

Table 1 contrasts the independent variables in econometric and physical approaches. One might argue that we are creating a false dichotomy, that a good forecasting model should include whatever variables are appropriate. Indeed it should, but two points make the dichotomy real today. First, while consumers seldom want energy per se — they want energy services such as conditioned space, mechanical motion, electronic motion in circuits — utilities usually are in the business of selling energy. For historical reasons they have considered efficiency a minor variable. (In some states, notably California, utilities have been directed by their public service commissions to begin to think of themselves as providers of energy services. These utilities have such untraditional programs as rebates to consumers who purchase more energy-efficient refrigerators and low-interest loans for weatherization of structures. The Illinois Commerce Commission has required no such program.)

Second, the model used by the largest electric utility in Illinois to predict peak residential power includes only two physical variables (number of customers and number of air conditioners) with no reference to efficiency. The model does use several of the economic ones in column one of Table 1.

The physical approach, involving a birth-death model for appliances and for space conditioning devices (including the building's shell), is the basis for an energy "projection" we have made for Illinois in the period 1980–2000 (the full report is "Residential and Industrial Energy Conservation Potential in Illinois, 1980–2000" by R. Herendeen, C. Jacobs, and R. Robinson, Institute of Natural Resources, ILL DOE-81/35, September 1981). Since this method has no explicit price dependence (although there is indirect price dependence through the fact that we assume that investments in energy efficiency are cost-effective), there is nothing to forbid that a household may have three refrigerators, or operate the air conditioner with the windows open. To this extent our physical "forecast" is a "what if" forecast based on the acceptance of certain increased levels of energy-use efficiency. However, for reasons detailed in the third section, we believe that at this time an econometric model will be relatively susceptible to error. In addition, because of our fairly conservative assumptions about energy-efficiency improvements in appliances, a major portion of the potential energy reductions we calculate for them is likely to occur.

In the remainder of this paper we describe the physical method and results (second section) and discuss the results (third section). The Appendix contains justification for the cost-effectiveness of the measures chosen. In the third section, we conclude that residential energy use in Illinois in 20 years will likely be less than that of today, in spite of an anticipated 25 percent growth in the number of households.

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Method

Total residential energy use is obtained by adding together the uses of individual devices (appliances and space conditioning). For example, the energy use of all residential refrigerators in Illinois is given by multiplying the number of residences by the refrigerator saturation (which can exceed 100 percent) by the average energy

use per refrigerator. Performing this calculation for all appliances (including a miscellaneous term) gives the total residential electricity use. A similar approach is applied to space conditioning, including thermal integrity of the building shell. The impact of efficiency changes is to change the average, per-unit energy use.

The efficiency changes we consider are cost-effective, generally without any changes in lifestyle. The measure we consider that impinges most on lifestyle is a shower flow restrictor, and in the original report it is treated as an option. We define cost-effective to mean that the payback time needed to recoup the additional cost of energy-efficient equipment by saved energy bills, is acceptably short. In the calculation, we account for anticipated energy price increases (Table 2), and we discount future savings using a real discount rate of 3 percent. The value is based on the observation that the average difference between actual interest rates and overall inflation has been 2–3 percent over the last several decades. Cost-effective measures are selected from a growing literature, notably from the State of California (which has its own appliance standards) and the US Department of Energy. In most cases the measures are so conservative that they are already on the market. (See the Appendix for further discussion.) Residence projections are obtained from the Illinois Bureau of the Budget and saturations from various utilities in the State.

In a physical sense, an energy-efficient device is cost effective if the payback time is less than the expected lifetime of the appliance. Even though some devices have very long lives (for example, refrigerators, 20 years), a realistic figure for cost-effectiveness is considerably lower. In practice, a payback time should be less than 6 or 7 years, that is, less than the payback period for a home improvement or appliance loan, and take into account the fact that families change residences every several years.

In most of our calculations, we arrived at payback times which met this second criterion for cost-effectiveness (see Table 3).

For a baseline energy use we assume that average per-unit energy use remains at the level of today's stock. For the "efficient" future, we assume that whenever a new appliance is purchased (either for replacement or placement in a new household), the efficient model is chosen. (We do not assume any accelerated retirement, which might be cost-effective in some cases.) See Table 3 for a listing of saturations and per-unit energy use.

While most physical forecasts include a baseline, determining it is actually difficult. For example, to assume that per-unit energy use of refrigerators remains constant at that of today's stock ignores the fact that significantly more efficient units are now being sold. An extrapolation of today's trends should probably account for this. We do include a baseline, but feel that the comparison between forecast energy use and use today (1980) is more useful.

Our physical forecast, then, embodies a competition between the growth in the number of households and of saturation and the reduction in per-unit energy use.

Results and Conclusions

From our physical approach, we find that the total energy use for all appliances in Illinois should decrease 21 percent by the year 2000. (Gas and electric energy are added at point of use.) This result is dominated by efficiency improvements in refrigerators, freezers, and water heaters. It should be noted, however, that appliance *electric* energy goes down only very slightly (2 percent) compared with 1980. This results from an assumed switch to more electric water heating. Chart 1 shows all appliance electricity use, and demonstrates that assumed continued growth of households and saturation leads to energy growth, in spite of efficiency improvement. Thus in Chart 1 appliance electricity use bottoms out in 1985 and then begins to increase.

Space-conditioning energy reductions are indicated in Chart 2. These are dominated by increased thermal integrity of structures and affected to a lesser extent by more efficient air conditioners. Anticipating two types of institutional barriers, we differentiate between renters and owners and between new and older structures. We can see that if owners do invest in efficiency but renters do not, about 75 percent of the conservation potential is

Table 1

Typical independent variables used in econometric and physical forecasts of residential energy use. (In approximately declining order of importance).

ECONOMETRIC	PHYSICAL
Real price of electricity	Number of customers
Real price of natural gas	Thermal integrity of structure
Per capita income	Efficiency of appliances[a] and structure
Gross state product	Saturation of appliances
Number of customers	Number of household members[a]
	Climate and weather variables
	Lifetime of appliances and structures
	Real price of energy and cost of efficiency improvements

[a]More than one variable may apply to a particular use. For example, both of these are used to predict hot water use. Personal use of hot water is dependent on the number of household members, but standby heat losses through the water heater's walls are independent of use.

Note that the two lists are not totally independent.

Table 2

Assumed Residential Energy Prices

	YEAR			
	1980	1985	1990	2000
Natural gas ($1980/therm)	0.325	0.410	0.495	0.665
Electricity ($1980/kWh)	0.065	0.069	0.073	0.080
Oil[a] ($1980/gal)	1.09	1.17	1.35	1.67

[a]138000 BTU/gal.

Source: "Illinois Energy Consumption Trends, 1960–2000," Staff working paper, Illinois Institute of Natural Resources, 1981, p.241

Table 3

Energy use by selected device, 1980 vs. 2000

DEVICE	Per-unit energy, 1980 (kWh/yr or therm/yr)	Per-unit energy efficient model (kWh/yr or therm/yr)	Payback time of efficiency improvement (years)	Saturation 1980 (%)	Saturation 2000 (%)	Energy for all units, 1980 (kWh/yr or therm/yr)	Baseline [a] forecast, 2000, as % of 1980 level	Conservation forecast 2000, as % of 1980 level	% Difference, [a] conservation vs. 2000 baseline	% Difference, conservation vs. 1980
Refrigerator	1246	666	2	121.7	125.0	6.19×10^9	1.31	0.70	-46	-30
Freezer	1170	379	2	32.4	39.7	1.55×10^9	1.51	0.50	-67	-50
Hot water heat [b]										
gas	358	309	4	65.8	54.1	0.59×10^9	1.42	0.77	-46	-23
electric	4460	3744	1	30.9	41.1	4.37×10^9	1.76	0.83	-27	-17
Range										
gas	88	57	2-4	72.0	72.0	0.26×10^9	1.24	0.81	-35	-19
electric	780	695	3	28.0	28.0	0.89×10^9	1.24	1.10	-11	+10
Clothes dryer										
gas	50	43	8	33.0	30.9	0.060×10^9	1.16	1.00	-14	0
electric	1200	1060	2	37.4	41.4	1.59×10^9	1.36	1.21	-12	+21
Lighting	1070	813	10 [c]	100.0	100.0	4.37×10^9	1.24	0.94	-24	-6
Space heating										
gas	1070 [d]	440 [d]	8 [d]	[g]	[g]	4.04×10^9	1.00	0.48	-42	-42
electric	10000 [e]	5000 [e]	3-6 [e]	[g]	[g]	6.05×10^9	1.95	1.26	-35	+26
Space cooling (central)	2000 [f]	1240 [f]	8 [f]	[g]	[g]					

a Comparison with "baselines" are often misleading since baselines are often poorly defined. See text, section II.
b Difference is for new units. Water heaters can also be retrofit with insulating blankets. The energy uses indicated include hot water use by dishwashers and clothes washers.
c This payback time for lighting is almost prohibitively long.
d These figures for gas space heat are for existing stock, and an efficient new residence, respectively. The retrofits we assume save less energy and have shorter payback times.
e These figures for electric space heat are for existing stock, and an efficient new residence, respectively. The old unit has resistance electric heating, the new unit has a heat pump. Various retrofits are also available for old residences.
f Based on an EER (i.e., BTU of cooling per Watt-hr) of 6.5 for today's stock, and 10.5 for new units.
g Saturations different for single family, multi-family, etc.

Source: Herendeen, Jacobs, and Robinson, "Residential and Industrial Energy Conservation Potential in Illinois, 1980-2000," Institute of Natural Resources, ILL DOE - 81/35, September 1981.

realized. On the other hand, if older structures are not retrofitted, only about 20 percent of the potential is obtained. Thus, our assumption that older residences will be retrofitted is a critical one.

Adding appliances and space conditioning together yields the results in Chart 3, a 46 percent reduction from today's use. We have found, however, that residential electricity use actually increases by 3 percent. This is a consequence of the assumed increase saturation of electric space heating and air conditioning in new residences. This increase, while small, contrasts with the rather large decrease in overall energy. The latter is dominated by gas consumption, which decreases.

A few comments on the "goodness" of our results are necessary. In our original report we emphasized that we had calculated for a rather hypothetical future: households improve energy-use efficiency to a specified level. Since that report, two bits of information have lent more credence to our physical approach.

First, we feel that at this time of transition, an econometric model will be relatively ineffective in predicting consequences of improved efficiency. The reason is the available data base. According to the Association of Home Appliance Manufacturers, most of the appliance-efficiency improvements quoted in the first section actually occurred in 1978 or later. Because appliances have lifetimes of 10 years (water heaters) to 20 years (refrigerators), this has had little effect on the stock. For a typical time series covering, say, 1965–1980, only 3 of 15 data points will reflect even the beginning of this trend. Even a well-constructed econometric model applied to this limited data base will yield relatively fuzzy results for terms dependent on energy efficiency. (Running this same model in 1985 would presumably produce much better results.)

Second, a recent statement by the Department of Energy (*Federal Register*, 2 April 1982) indicates that the efficiency levels we assumed (based, for appliances, on the 1986 proposed federal standards) will occur in the absence of standards anyway. These were quite conservative, with payback times typically under four years. This conclusion is based on a model which incorporates both physical and econometric aspects (developed at Oak Ridge National Laboratory) and which is applied at a national or regional level (not a statewide level). In spite of the fact that DOE's conclusion helps to support our position, it is only fair to indicate that it comes from an administration opposed to appliance standards on apparently ideological grounds.

On the other hand, we must admit that our residential energy savings are dominated by retrofit thermal tightening of existing structures, and for this we have the least "independent" indication that retrofitting will occur to the degree we assume.

On balance, therefore, we do not claim that our savings of 46 percent by 2000 will happen. But we feel that enough of the residential efficiency improvements will occur so that residential energy requirements in Illinois will not rise from 1980–2000. Any energy-supply plan based on a rise will therefore very likely lead to overcapacity.

Chart 1. All Appliance Energy Use, Electricity

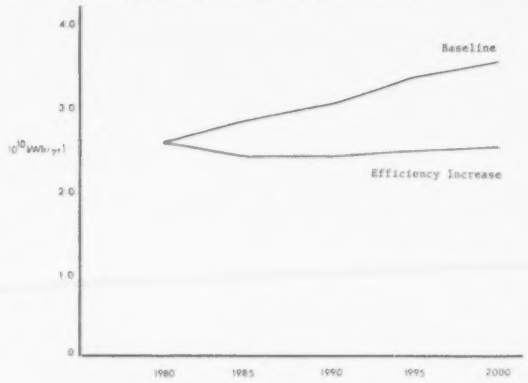
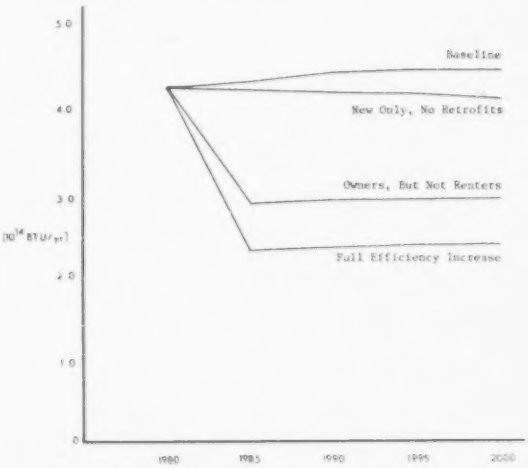
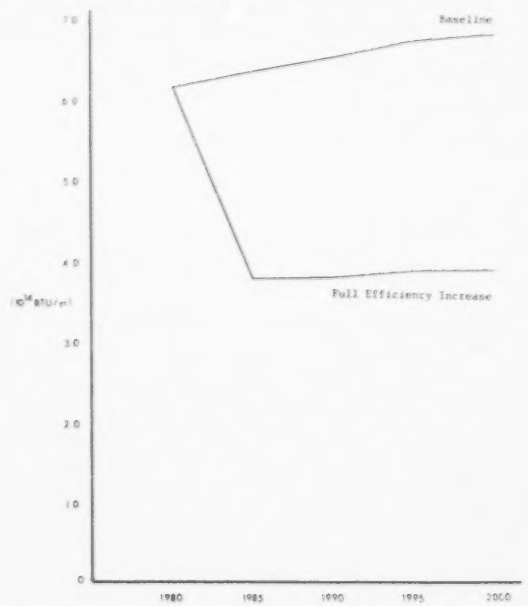


Chart 2. Space Conditioning Energy



Space conditioning energy includes electricity, gas, oil and LPG. Energies measured at entry to residence; power plant losses, etc., are not included.

Chart 3. Total Residential Energy



Appendix

Justification of Cost-Effectiveness of Measures Chosen

Improvement of physical efficiency usually requires increased first costs (more insulation, a larger compressor, and so on). Considerable uncertainty surrounds these marginal costs of efficiency, especially with regard to reducing them through mass production. Here we review some of our sources.

For appliances, the main source is work done by the United States Department of Energy for the once-proposed Federal Appliance Standards (Document DOE/CS-0166, June 1980). DOE made calculations for three levels of potential savings, the highest being the "maximum technically feasible." We usually choose the second level, which was proposed for the proposed 1986 Federal Appliance Standards.

We also use work from Lawrence Berkeley Laboratory of the University of California, notably "Supplying Energy Through Greater Efficiency: The Potential for Conservation in California's Residential Sector" (Document LBL-10738, EEB 80-2, preprint January 1981). In this study the successive cost of each additional technical improvement is calculated. This is then translated into its equivalent cost per kWh or therm. In effect it builds up a conservation "supply curve" that can be compared with the cost of providing additional energy. In principle this comparison should be with the marginal cost of energy. However, our cost-effectiveness is always obtained assuming the average energy price, since today this is usually the price charged the residential consumer.

The "SERI Report" (*A New Prosperity: The SERI Solar/Conservation Study*, Brick House Publishing, 1981) provides a good summary of engineering cost studies.

To be conservative, we favored those appliances which featured modest changes in energy use and purchase price. In most cases, results from the three studies above agree fairly well. Where noticeable differences in purchase price occur, we run our payback calculations using a range of purchase-price estimates. In most cases (exceptions are clothes dryers and gas ranges; see Table 3) this does not affect the payback time.

Regarding space conditioning, for new structures it is accepted that thermal tightness to a degree several times that of today's housing stock is a cost-effective investment. As with appliances, this is already affecting what is available. In Table 4, for example, we can see that houses built between 1976 and 1980 use about one-half the space-heating energy used by the average stock.

The crux of large, space-conditioning energy savings in residences is, however, the potential for retrofit. According to our assumptions, about two-thirds of residences expected to be available in 2000 exist today. Well-controlled experiments on retrofits are rather rare, but some data are now becoming available. As shown in Table 3 for retrofitting, the payback times are getting longer — as much as eight years, and a large initial investment can be involved — as much as $2,000.

From the limited documentation on retrofits, one point emerges — successful retrofit calls for a rather high level of technical skill and workmanship. It is not adequate just "to insulate," since first, infiltration losses (which are not stopped by insulation) may be large, and second, improperly installed insulation may be full of thermal by-passes that reduce its effectiveness. "House doctoring" (a concept developed at Princeton University) provides the needed additional skills. House doctors employ techniques and equipment (for example, blower doors to pressurize structures to allow detection of air leaks) to evaluate losses of several types, and then recommend specific measures. Further, they follow up and monitor results (with inspection by eye and by infrared cameras). This contrasts with the insulation-pumper approach still prevalent in East Central Illinois, in which there is no initial evaluation of condition vs. infiltration losses and especially no follow-up quality control. House doctoring therefore involves higher labor costs and (usually) lower material costs.

We have evaluated approximately a dozen insulation-pumping retrofits in residences in Champaign-Urbana, and find energy savings around 20 percent. Integrated house-doctor-managed efforts have claimed savings around 50 percent relative to today's use in Illinois. The measures we assume in this study involve some infiltration control, and save (for gas or oil heated residences) around 40 percent. Details are given in the larger report. We are therefore assuming that the house doctoring approach will become available, and be used, in Illinois.

Table 4

Space conditioning: energy efficiency index for heating[a]

	EEI (BTU/DD/ft^2) Before/After Retrofit		
Old structures except mobile homes:	Uninsulated	Partly Insulated	1976-80 Practice
Fuel heated	35/8.7	14.3/8.7	7.4/6.6
Electric heated	--	4.6/3.8	4.6/3.8
Old mobile homes			
Fuel heated	14.3/8.7	14.3/8.7	---
Electric heated	10.0/6.1	10.0/6.1	---
New structures except mobile homes:	As-built/efficient		
Fuel heated	7.4/4.4		
Electric heated	4.6/3.1		
New mobile homes:			
Fuel heated	14.3/7.4		
Electric heated	10.0/6.1		

[a]Improvements in winter heating requirements produce some, but not necessarily a proportional, reduction in summer cooling requirements.

Electricity: 1 kWH = 3413 BTU

Floor areas (ft^2): Single family detached 1400 old, 1600 new
Single family attached 1200
Multi-family 875
Mobile 915

DD = Degree Days = 6250 = Illinois population-weighted average.

The Seasonal Adjustment of Economic Data

PHILLIP A. CARTWRIGHT

Data on important economic indicators are frequently reported on a "seasonally adjusted" basis. That is, prior to being released to the public, adjustments are made to remove from the data those results attributable to seasonal factors.

The practice of presenting data in a seasonally adjusted form results from a desire to make a prompt identification of unusual developments. Presumably, those developments that may be characterized as usual can be safely neglected. Such developments are expected; their consequences have been anticipated; reactions may have become routine. In contrast, there is a great deal of interest in the explicit and timely recognition of unusual developments. Even if unusual developments are expected, it may be important for expectations to be confirmed. If the unusual is also the unexpected, whether favorable or unfavorable, it may be important to make timely adjustments.

The importance attached to changes in data other than of a seasonal character depends upon the use to which the information may be put. Those responsible for decisions relating to national economic policy may be most interested in identifying *cyclical* changes. The overall business climate can have an important bearing on fiscal and monetary policy decisions. Businessmen also have an interest in the cyclical strength of the general economy. But in evaluating the progress of their own business or industry, businessmen often seek to identify shifts in *trends*. That is, they concentrate on longer-term movements of importance to business-strategy decisions.

The purpose of this article is to contribute to an improved understanding of the role of seasonal adjustments in economic and business analysis. First, there is a discussion of the sources of change in economic data, with special reference to the sources of seasonal change, and a discussion of common problems associated with the interpretation of seasonally adjusted data. Second, a simple seasonal-adjustment procedure is described.

The Sources of Change in a Time Series

Most economic data are reported on a periodic basis — weekly, monthly, or quarterly. Such data, in which observations are separated by time, are referred to as time-series data.

Over the years it has become customary to decompose the periodic changes in time series into their trend, cyclical, seasonal, and irregular components. The first three components are sometimes referred to as systematic; the irregular component is regarded as nonsystematic. That some movements are systematic means simply that there are relationships running from identifiable causes to qualitatively predictable results in the economic data. The trend component indicates the long-term movement in a data series over time. For example, the growth rate of the Gross National Product over the past forty years reflects a long-term trend. The second influential component, the cyclical factor, reflects changes in the economic environment recurring on a somewhat regular basis over varying time periods. Usually these periods are specified as being greater than one year in length, thus distinguishing cyclical from seasonal movement. The most familiar example of the cyclical component is the so-called business cycle indicating recessionary and economic recovery periods. The seasonal component of change in economic data may relate to the weather, the number of working days in a month, or customs, such as Christmas-time, that are related to the time of the year.

In contrast to sources of movement in data discussed thus far, fluctuations in data attributed to the irregular component are not predictable. These changes may result from unexpected events such as strikes, floods, and unanticipated changes in a nation's political policies.

The seasonal adjustment process involves the removal of a seasonal factor from a recorded series. The seasonal factor may influence the data in one of two ways. First, it may be the case that the seasonal impact is additive — that is, the influence of seasonality is added into the data. Second, the seasonal factor may influence the data in a multiplicative way. In this case, the seasonal component inflates or deflates the series by an amount which is multiplied into the series.

Suppose the four components of a seasonal time series such as quarterly retail sales have a multiplicative relationship to the series. This means

$$\text{Retail Sales in a Quarter} = T \times C \times S \times I,$$

where T, C, S, and I are the trend, cyclical, seasonal and irregular components, respectively. Presumably, if each of these components can be identified, it is possible to divide the retail-sales figure for any particular quarter by one or more components in order to obtain information about the influence of a factor on the data. For example, suppose that the irregular component behaves in a random way, and it is thought that over time on average the impact of the irregular factor on the data can be dismissed. Furthermore, suppose evidence indicates that the trend and cycle components can be identified by taking certain types of averages of the data over time and dividing these average figures by the average for the entire series. If such a procedure is viable, it is then the case that the seasonal component is known. In terms of the equation presented above, this discussion suggests that

$$S = \text{Seasonal Factor for Retail Sales in a Quarter}$$

In practice, such a procedure is possible, and an example of its use will be provided below.

Although the deseasonalization of data is carried out routinely in mechanical fashion, there are unresolved conceptual problems. In reality, it is not clear which movements in data should be attributed to seasonal fluctuations in economic activity. Some phenomena such

as increases in total retail sales during the Christmas season or decreases in travel to national parks during the winter months are clearly seasonal. Others may be less obviously so. For example, the past winter was extremely cold. Even though the bad weather occurred *when* it was expected, it was much *worse* than expected. This was an irregular element. The problem of identifying seasonal patterns in data is also complicated by events resulting from political decisions such as oil embargoes. When nonseasonal forces become entangled with seasonal factors, the disentangling process becomes complex.

Charts 1 through 3 show examples of the factors discussed above. Chart 1 shows the behavior of the US Gross National Product over the period 1956–1980. The trend component is clearly identifiable by observing the positive or upward movement of the series over time. Chart 2 reflects the variation in the unemployment rate over the 1956–1980 time period. The cyclical nature of the series is readily observable. Notice the high points or peaks corresponding to periods of economic recession and the low points or troughs indicating more prosperous periods. Chart 3 shows quarterly retail sales in the US over the period 1978–1981. The quarterly series is plotted separately for each year so as to reveal the seasonal pattern characteristic of retail sales. The series has not been adjusted for the trend component. The fact that the most recent year is plotted above the previous year is due in large part to the trend factor. The retail sales data have also been plotted in Chart 4 so as to provide a better picture of the seasonal nature of the data over time.

Chart 1. Gross National Product (Billions of Dollars)

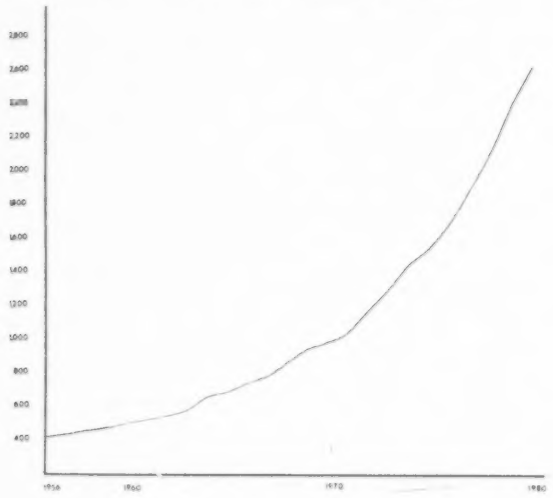


Chart 2. Unemployment Rate (Percent of Civilian Labor Force)

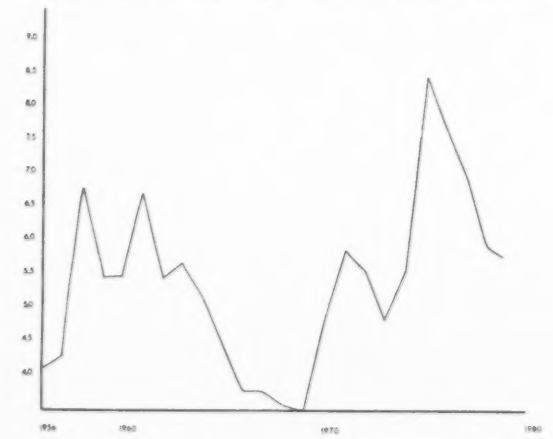


Chart 3. Retail Sales (Millions of Dollars) (1978–1981)

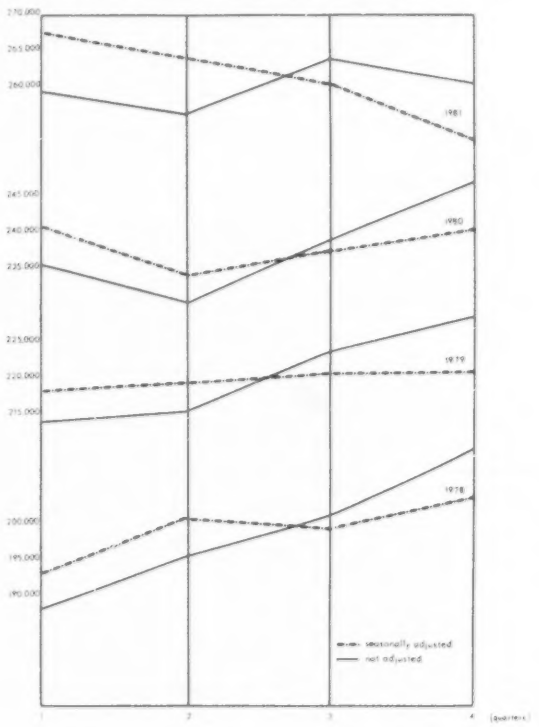
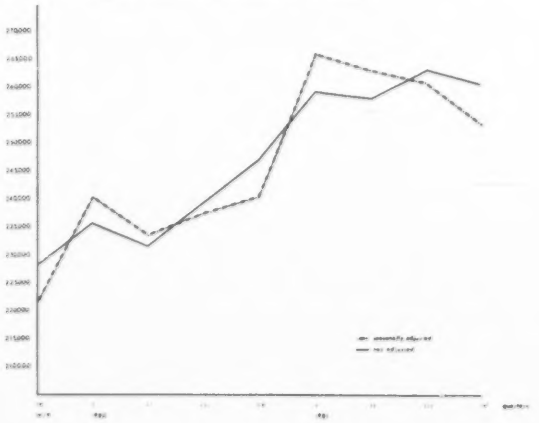


Chart 4. Retail Sales (Millions of Dollars)



Notice that the first quarter of each year is consistently below the remaining three quarters. The quarterly series tends to climb from the first to second and second to third quarter. Typically, the seasonally unadjusted retail sales series exhibits the greatest amount of strength in the fourth quarter of each year, owing to the impact of holiday shipping. This tendency is clear from the data plotted in Chart 3. There are exceptions to these general observations. For example, one occurs in the fourth quarter of 1981, a year during which overall economic activity tended to stall.

Adjusting a Time Series for Seasonal Variation

Numerous procedures have been developed for eliminating the various sources of fluctuation characterizing data series. Some of the methods are intended to identify a single factor and are straightforward, while others are intended to decompose a series fully and are extremely sophisticated. Because an understanding of the advanced procedures requires considerable knowledge of statistical techniques, these approaches will not be considered in this article. Rather, the focus is on the identification of the seasonal component, and therefore a less complex method is thought to be appropriate.

Table 1 presents the quarterly data on US retail sales. This is the series plotted in Chart 3. The seasonal nature of the series has been discussed above, along with the trend component. A cyclical component is somewhat difficult to detect by observing the series as it is plotted. However, the correspondence between the performance of the retail-sales series and the overall health of the economy is reflected by the fourth-quarter downturn in the 1981 data.

The most simple procedure for analyzing seasonal time-series data is to compare the figure recorded for a recent month or quarter with that posted during the same period in the previous year. Provided that the seasonal factor is the same in both periods, such comparisons can yield useful information about economic performance. However, if the month or quarter of interest happens to be seasonally atypical, such comparisons will be misleading. The technique described below is somewhat more complicated: but to the extent that averages of past data points are used, the technique is less sensitive to the kind of error associated with the simpler comparative procedure.

Table 1. US Retail Sales (Millions of Dollars)

Year	Quarter	Seasonally Unadjusted Series	Seasonally Adjusted Series
1978	I	188,865	193,134
	II	196,638	198,644
	III	201,612	199,221
	IV	210,043	203,231
1979	I	214,022	218,836
	II	215,083	219,472
	III	224,093	221,436
	IV	228,847	221,966
1980	I	226,063	231,171
	II	230,222	234,920
	III	239,960	237,085
	IV	247,259	240,309
1981	I	259,681	265,727
	II	258,740	264,029
	III	264,840	261,502
	IV	260,942	253,096

Table 2. Quarterly Averages and Seasonal Adjustment Factors

Quarter	Quarterly Average (Millions of Dollars)	Seasonal Adjustment Factor
I	224,707.8	.978
II	225,169.3	.980
III	232,571.3	1.012
IV	236,898.8	1.031

Series Average = 229,835.8

The procedure employed to identify the seasonal component involves the computation of simple averages. First, an average quarter is computed for the entire data series, and second, an average value for each quarter is calculated. The seasonal factor for any quarter — for example, the January–March quarter — is calculated by dividing the average for the first quarter by the average of all quarters. Then, to obtain the seasonally adjusted series, the factor is divided into the original series. The appropriate averages and the quarterly factors are given in Table 2. The seasonal-adjustment factors are interpreted in the following way. The base value of the seasonal factor or index is 1.00. Thus, first-quarter retail sales tend to be 97.8 percent of overall average sales; in contrast, sales in the fourth quarter tend to be 103.1 percent of the overall average. As one would expect, the arithmetic average value of the index is 1.00. Dividing the original series by these factors results in a seasonally adjusted series shown in the second column of Table 1. These values are plotted as a broken line in Chart 3. Note that removal of the seasonal component results in a smoother series, that is, the extent of the fluctuations has been reduced.

It has been suggested that the interpretation of seasonally adjusted data may be difficult for a variety of reasons. The data used in this article provide an example of one type of problem likely to arise in the analysis of seasonally adjusted series. Namely, when an atypical month or quarter occurs, application of the seasonal-adjustment factor serves to exaggerate the atypical nature of the change.

It has been noted that on a seasonally unadjusted basis fourth-quarter retail sales tend to be greater than sales in other quarters during a given year. As a result the seasonal adjustment factor exceeds 1.0, reflecting the percentage by which fourth-quarter sales exceeds the series average. Chart 3 indicates that retail sales declined on an unadjusted basis in the final quarter of 1981. Then, the seasonal factor of 1.031 is applied, resulting in a further downward adjustment of the figure recorded during the quarter.

The imagery created by this process may be quite useful and accurate for those interested in the overall economy. But those actively engaged in retail business will not relate easily to the picture. It runs somewhat contrary to their experience. After all, sales during the year were above those in the preceding year. Also, sales did rise during the year. But the seasonally adjusted data declined throughout the year.

A similar, but opposite, problem arises when a series turns upward in an atypical manner and seasonal factors of less than 1.0 are applied to that series. The upward movement is exaggerated.

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The importance of seasonal adjustment in the process of evaluating economic data is apparent. The data reported to the public plays a critical role in influencing decisions at the personal and business levels. These decisions, in turn, are critical in determining the health of the nation's economy and the policies implemented in order to achieve a stable and prosperous economic environment. The seasonal adjustment of time series provides a technique for enhancing our ability to understand the valuable information transmitted by data.

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Financing Single-Family Housing: Where Will the Funds Come From in the 80s?

ROGER E. CANNADAY, R. STEPHEN SEARS, AND HAN BIN KANG

The housing industry has traditionally been regarded as counter-cyclical, in large part due to the disintermediation which typically occurs during the latter stages of a general business expansion. Rising interest rates during this portion of the business cycle cause a reduction in the flow of funds into an industry which is heavily dependent on financial intermediaries, particularly savings and loan associations.

Recognizing the importance of the housing sector in terms of GNP, employment, and wealth distribution, the federal government has been actively involved in efforts to promote and stabilize the housing industry since the early 1930s. These government efforts have included loan insurance programs, support of the secondary mortgage market, and certain regulatory changes regarding the manner in which mortgage lending institutions can operate. Collectively, these efforts have been designed to increase safety and liquidity in mortgage lending, thus facilitating private-sector lending to achieve the stated public policy goal of "a decent home and suitable living environment for every American."

In pursuit of their housing goal, Americans have made extensive use of mortgage financing. During 1981, the total amount of single-family-home mortgage debt outstanding reached one trillion dollars, at about the same time the federal debt reached that level. The percentage of homes owned by their occupants increased from an average of about 45 percent during the 1930s to about 65 percent by 1981. This percent of owner-occupied units is higher than most other countries in the world, with only Australia, Canada and Japan among major industrialized nations even close to 65 percent. However, the number of new, single-family housing units started in the US peaked in 1977 and 1978 at over 1.4 million units per year and dropped to approximately half that level in 1981 (the lowest number of starts since the end of World War II). This downturn in housing starts has been a major factor in the current recession and is associated with record high interest rates on mortgage loans.

Our purpose is to examine the changes that have occurred in the single-family-housing loan market since the early 1930s and the implications that these changes may have for future sources of permanent financing of housing. Examination of these changes is presented in two parts. The first part covers the period from the early 1930s to 1970, an era of increasing government involvement in the mortgage market. The second part covers the period from 1970 to 1980, a period during which there has been extensive reexamination of the government role in areas related to the mortgage market. We conclude with a discussion of the implications of recent changes for financing single-family homes in the 1980s.

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Financing Single-Family Housing Prior to 1970

With the stock market crash in 1929 and the beginning of the Great Depression, the federal government became actively involved in attempting to develop a well-functioning housing market. The government's ini-

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The Federal Budget Deficit in Perspective
By William R. Bryan and *John F. Schnell* / *Page 8*

tial purpose was to stimulate mortgage financing and new construction in hopes of boosting a sagging economy. The primary aim was to assist people to finance the purchase of housing.

Government agencies were instructed to make their programs so effective that private enterprise (mortgage originators) would want to participate in them. In 1932 the Home Loan Bank Act created the Federal Home Loan Bank System. This was followed by the Home Owners Loan Act in 1933, which provided for the federal chartering of savings and loans — the principal mortgage-originating institution in the United States. Then in 1934 the Federal Housing Administration (FHA) and the Federal Savings and Loan Insurance Corporation were established. The FHA immediately began its loan insurance program for home mortgages, and the Veterans Administration subsequently introduced loan guarantee programs for home mortgages in 1944. Through their underwriting conditions, these two agencies initiated the process of standardization and grading to a product — the single-family mortgage loan — which had previously been largely heterogeneous. In 1957 these two federal agencies were joined by the Mortgage Guaranty Insurance Corporation (MGIC), the first of 14 private mortgage insurance companies. In turn, the insurance/guarantee function provided by these federal and private agencies greatly increased the safety and liquidity of the mortgage instrument by providing the lender with the assurance that funds were available in the event of nonpayment.

It was during the period of institutional and regulatory change of the 1930s that the short-term, nonamortizing mortgage which was common prior to the Depression gave way to the long-term, fully amortizing, level payment, fixed-interest-rate instrument. This long-term type of mortgage remained the primary form of financing for the purchase of single-family homes until the late 1970s.

During most of the post-depression era, the primary (originating) market for single-family mortgage loans has been defined primarily by four institutions — savings and loans, mutual savings banks, commercial banks, and mortgage banking firms. Since a secondary market was not well developed prior to 1970, once a loan was made, it usually remained on the books of the originating firm. The one notable exception was the mortgage banking firm (MBF). Since the MBF has no depository source of funds, it relies upon secondary market sales to generate its operating funds. During the period 1935 to 1970, MBFs found secondary market sources of funds primarily in the form of life insurance companies. The MBF typically tailored its loan policies to suit the final lender, the life insurance company.

Savings and loans (S&Ls) have long been the leading institutional lender for single-family mortgages. As shown in Table 1, S&Ls held about 28 percent of the dollar amount of home mortgage loans at the end of 1945. This was about the same as that held by individuals and was almost twice as much as that held by any other institutional lender. By the end of 1955, S&Ls held over one-third of home mortgage debt outstanding and by 1970 held nearly 42 percent. During this same period, the percentage holdings by mutual savings banks and commercial banks remained relatively the same, whereas the percentage holdings by life insurance companies and individuals declined appreciably.

In 1945, about 53 percent of the permanent financing for single-family housing was held by three types of institutions — savings and loans, mutual savings banks, and commercial banks (see Table 1). By 1970, these institutions held over 70 percent of single-family loans. Such a concentration of mortgage loans in depository institutions made the housing market susceptible to the high interest rates and disintermediation that occurred from 1965 to 1970, particularly in 1966 and 1970.

Financing Single-Family Housing, 1970 to 1980

Efforts to remedy the effects of disintermediation upon the mortgage market have come primarily from two directions. First, since 1970 the federal government has been more actively involved in developing an efficient and orderly secondary mortgage market for single-family mortgage loans. Second, the passage of the Depository Institutions Deregulation and Monetary Control Act (DIDMC) of 1980 and the development of adjustable rate mortgages by the Federal Home Loan Bank Board (FHLBB) were the culmination of several years of work aimed at improving the institutional structure of mortgage-lending depository intermediaries. We now examine these developments and assess their implications for the financing structure of the mortgage market for single-family homes.

The Secondary Mortgage Market

Prior to 1970, the secondary mortgage market for single-family housing was not well organized and consisted primarily of mortgage banking firms (MBFs) and large life insurance companies. Under this so-called "correspondent system," MBFs financed their operations through short-term bank borrowings and relied heavily upon secondary market sales to insurance companies to sustain their cash-flow cycle. As a result, most MBFs operated regionally, producing loan portfolios to satisfy the particular needs of their client (usually an insurance company). Pressured by cash-flow problems and low

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Table 1

HOME MORTGAGE DEBT OUTSTANDING
(Percentage Distribution at Year-end, 1945-1980, US)

	1945	1950	1955	1960	1965	1970	1975	1980
Savings & Loan Associations	27.73%	29.03%	34.00%	39.02%	42.74%	41.84%	45.62%	43.68%
Mutual Savings Banks	10.19	9.55	13.41	14.50	15.34	14.16	10.16	6.83
Commercial Banks	15.46	20.99	17.08	13.56	13.79	14.22	15.68	16.80
Credit Unions	0.16	0.15	0.20	0.27	0.26	0.27	0.32	0.45
Finance Companies	0.34	0.83	1.34	0.99	1.73	1.96	1.18	1.00
REIT's	--	--	--	--	--	0.20	0.28	0.08
Life Insurance Companies	12.40	18.77	20.01	17.53	13.42	8.99	3.57	1.92
Private Pension Funds	--	0.10	0.17	0.42	0.69	0.60	0.14	0.12
State & Local Gov't. Retirement Funds	--	0.08	0.19	0.55	0.89	0.96	0.66	0.40
Mortgage Pools	--	--	--	--	0.07	1.02	6.10	13.29
Gov't. Sponsored Credit Agencies	--	--	0.10	2.04	1.14	5.22	6.28	6.03
U.S. Gov't.	4.81	3.25	3.32	2.98	1.77	2.09	1.41	0.38
State & Local Gov't.	--	0.49	0.59	0.98	0.77	0.63	0.84	1.60
Individuals	28.90	16.77	9.59	7.16	7.40	7.84	7.77	7.42
Total Percentage	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
Total Amount (billions)	$18.6	$45.2	$88.2	$141.9	$220.5	$297.7	$492.6	$960.4

Note: Components may not sum to exactly 100% due to rounding.

Source: Board of Governors of the Federal Reserve System, Flow of Funds Accounts, various issues (1945 from 1945-1972 issue, 1950 to 1975 from 1946-1975 issue, and 1980 from 1980 issue).

portfolio yields, life insurance companies drastically reduced their participation in the secondary market during the late 1960s and early 1970s. As a result, a need was perceived for more federal support of the secondary market mechanism.

In 1968, the Government National Mortgage Association (GNMA) was created, and the Federal National Mortgage Association (FNMA) was established as a government-sponsored corporation owned solely by private investors. However, it was not until 1970 that the GNMA initiated its pass-through securities program, a program that has revolutionized the secondary mortgage market. Also in 1970, the Federal Home Loan Mortgage Corporation (FHLMC) was established under the sponsorship of the FHLBB System. Together, these three institutions have drastically changed the home mortgage market environment since 1970. Through their operations, a nationwide secondary market for FHA/VA and conventional loans is provided. This market provides a set of commitments through which is facilitated the sale of mortgage loans by lending institutions. These activities aid greatly in moderating the cyclical flow of mortgage capital. The development and maturing of these institutions' functions have greatly improved standardization and liquidity in the mortgage market; as a result, investor interest in mortgages has increased, resulting in additional capital for growth.

The FNMA and the FHLMC provide support for the mortgage market through their loan purchase programs. Under these programs, mortgage lending institutions bid competitively or noncompetitively for the right to deliver (sell) packages of FHA/VA and conventional

loans to the FNMA and the FHLMC at the agreed-upon yield stated in the bid. These auctions are conducted nationwide, with strict regulations as to who may participate and how bids are to be submitted. There are maximum amounts for bids, as well as bidding costs and commitments fees. By the late 1970s, both organizations were conducting auctions for adjustable-rate as well as fixed-rate mortgage instruments.

The commitments issued by these two governmental intermediaries serve two economic functions. First, the commitment provides a guaranteed selling price for the loan package, thus providing lending institutions with interest-rate protection should market conditions change. Second, there is the assurance that funds are available, when needed, to meet the liquidity needs of lending institutions.

Table 2 presents a summary of the activity of these two agencies for the period 1970 to 1980. During this time nearly $100 billion in mortgage loans were sold through the FNMA and the FHLMC programs — $69.295 billion through the FNMA and $28.681 billion through the FHLMC. This provided additional capital to meet the loan demand and liquidity needs of mortgage lending institutions. Once purchased, the loans then appear on the books of the FNMA and the FHLMC as assets or are subsequently resold to private investors in the form of mortgage-backed securities. Thus, the FNMA and the FHLMC act both as a permanent lender and as a conduit through which loans are ultimately placed with private investors. As of 1980, these two agencies held approximately $55.6 billion in single-family home mortgage loans (96 percent of the total held by government-sponsored credit agencies as shown in Table 1).

The GNMA is the third major intermediary in this national, secondary-market network. The GNMA, through the mortgage-backed-securities program, guarantees privately issued securities backed by pools of FHA/VA mortgages. Holders of the securities (the investors) receive a "pass-through" of the principal and interest payments on the pool of mortgages, less amounts which go to the originating firm to cover servicing costs and certain GNMA fees. The GNMA guarantee assures the registered security holder of receiving the timely payment of the scheduled monthly principal on the underlying mortgages. In the event that the security issuer (mortgage originator) is unable to meet the timely payments, the GNMA steps in to provide the necessary funds.

Essentially, what the GNMA program does is to enable mortgage lenders to sell their FHA/VA loans in the marketplace through the issuance of GNMA pass-through securities. The mortgage lender turns the loan portfolio into cash and, thus, can make new loans to generate additional servicing revenue. The security holder (in essence, the permanent financing source) receives a high-yielding, highly marketable security. The GNMA does not purchase the loans, as do the FNMA and the FHLMC, but merely facilitates the sale of the loans.

By the end of 1980, GNMA mortgage pools accounted for almost 10 percent of the total volume of single-family loans outstanding. From 1970 through 1980, over $113 billion in GNMA pass-throughs were issued (see Table 2). Taking the FNMA, the FHLMC, and the GNMA as a group, the federal intermediary network provided over $200 billion in mortgage financing support for the period 1970 to 1980.

The DIDMC and Adjustable-Rate Mortgages

As important as the secondary market is in the provision of funds for mortgage financing, it cannot solve all of the problems facing mortgage lending firms — in particular, savings and loan associations. Secondary-market sales affect the asset side of mortgage lenders — new sources of funds are created via the sale of existing assets (mortgage loans). Even so, savings and loans (and to some extent other depository institutions) are still involved in borrowing short-term to lend long-term. This imbalance in maturity creates interest-rate risk whereby asset yields do not respond as quickly as liability yields to changing market conditions. Thus, when short-term rates rise, savings institutions experience deposit withdrawals as well as deteriorating earnings positions.

In March 1980, President Carter signed into law the "Depository Institutions Deregulation and Monetary Control Act" (DIDMC). Generally referred to as the Financial Reform Act, this Act was the culmination of at least a decade of pressure for significant changes in the regulation of financial institutions. The impetus for deregulation was contained in key recommendations of the Hunt Commission study which was completed in 1971. A subsequent study, entitled *Financial Institutions and the Nation's Economy* (FINE), initiated by the House Committee on Banking, Currency, and Housing in 1975, continued the thrust toward deregulation.

The deregulation provisions of the DIDMC generally increase the scope of deposit-taking, lending, and pricing activities of depository institutions. The overall objective is to place all depository institutions on an equal footing in a competitive environment.

As far as the single-family housing market is concerned, an important element of the DIDMC is the pro-

Table 2

SECONDARY MORTGAGE MARKET ACTIVITIES OF THE FNMA, FHLMC AND GNMA[a]

Year	FNMA	FHLMC	GNMA
1970	$ 5,079	$ 325	$ 452
1971	3,574	778	3,240
1972	3,699	1,298	2,661
1973	6,127	1,334	2,952
1974	6,953	2,191	4,553
1975	4,263	1,716	7,447
1976	3,606	1,175	13,764
1977	4,780	3,900	17,440
1978	12,303	6,524	15,358
1979	10,812	5,717	24,940
1980	8,099	3,723	20,649
Total	$69,295	$28,681	$113,456

[a]FNMA and FHLMC Statistics denote loan purchases, whereas GNMA figures relate to pass-through security issuances.

Sources: "Mortgage Markets" section of selected issues of the Federal Reserve Bulletin (1971-1981) and Mortgage Commentary Publications, Inc.

vision for the gradual phasing out of interest-rate ceilings on deposits by 1986. This legislation and the authorization of money market certificates for S&Ls in 1978 provide mortgage lenders with weapons to compete more effectively for savers' funds and to alleviate some of their problems of disintermediation and maturity imbalance. The principal effect upon the housing market is to provide mortgage-lending institutions with increased flexibility in attracting sources of funds for mortgage lending.

Additional flexibility has been provided by the development of the adjustable-rate mortgage. This innovation provides mortgage lenders with an asset whose yield is more responsive (relative to a fixed-rate mortgage) to changing market conditions, thus improving the firm's earnings position during periods of rising interest rates. Furthermore, in August 1981, an active secondary market for adjustable-rate mortgages was initiated by both the FNMA and the FHLMC, thus providing marketability of the new instrument.

Financing Single-Family Housing in the 1980s

Two major trends established in the 1970s have continued in the early 1980s, but it is very possible that one trend will ultimately result in the reversal of the other trend. These two trends are the increasing role of the government in secondary mortgage markets and the otherwise decreasing role of the government through institutional deregulation. Under the current administration there have been indications that the trend of decreasing the government's role may be applied to the secondary mortgage market as well.

Regardless of the ultimate resolution of these two potentially conflicting trends, it appears that the roles of the various players in the home mortgage market will be significantly different in the 1980s. Some of these changes are already evident, and others are beginning to emerge.

Role of Savings and Loan Associations

The role played by savings and loan associations (S&Ls) is already changing rapidly. The S&L's previously clear-cut role as the primary source of home mortgage funds appears to be in question. The increasing role of the GNMA and the FHLMC in the secondary mortgage market is allowing S&Ls to behave more like mortgage banking firms — originating and servicing mortgages but not holding them as long-term investments. Instead, mortgages are pooled and either sold outright in the secondary market or used for mortgage-backed securities. Either way, the ultimate source of funds for mortgages is changing. Investors in mortgage-backed securities, such as pension funds, are becoming more important as a source of funds.

At the same time, the deregulation of depository institutions is allowing S&Ls to behave more like commercial banks. Along with mutual savings banks and credit unions, S&Ls can now offer interest-bearing checking accounts, credit cards, trust services, and an expanded variety of consumer and mortgage loans. However, these expanded powers come at the cost of maintaining higher required reserves and the loss of the advantage over commercial banks of the .25 percent differential in allowable interest rates on deposits. Deregulation is creating a more competitive environment.

Unfortunately for S&Ls, the timing of the current recession and the continuing high interest rates have not created a favorable situation for their adjustment to a more competitive environment. Following a decrease to an only slightly profitable year in 1980, losses at federally insured S&Ls were a record $4.6 billion in 1981. Recent mergers have dropped the total number of S&Ls from about 4,700 at the beginning of 1980 to less than 4,000 at the end of 1981. A study just released by the Brookings Institution predicts that as many as one-fourth of the remaining S&Ls may be forced to merge with other institutions by the end of 1983. When the dust finally clears, the role of the S&L industry is likely to differ significantly from its pre-1980 role. In particular, its role as the major source of home mortgage funds is likely to be greatly lessened, even though it may continue as the major originator of home mortgages.

Prospects for Other Sources of Home Mortgage Funds

There are at least three other major institutional sources of funds with potential for playing a much more significant role in the home mortgage market. These three are credit unions, government retirement funds (state and local), and private pension funds. In addition, the role of individuals as a source of mortgage funds is becoming more important again.

The 1980 Financial Reform Act broadened the scope of loans that can be made by credit unions. Credit unions no longer have to specialize primarily in nonmortgage consumer loans, but can now make an increased number of residential real estate loans. As of 1980, credit unions held less than .5 percent of the outstanding home mortgage debt (see Table 1 for this and subsequent references to such estimates). However, they have assets of over $200 billion, primarily derived from member savings; thus there is great potential for additional investment in home mortgages. This investment is most likely to occur in the mortgage-backed securities of the secondary market rather than through direct investment in the primary market.

State and local government retirement funds held about 1 percent of outstanding mortgage debt in 1970. This share declined to .4 percent by 1980. With assets of over $200 billion in 1980, only 3 percent was invested in home mortgages (a steady decline from 11 percent in 1965). About 45 percent of their assets was invested in corporate bonds, 27 percent in shares of corporate stock, and 19.5 percent in US government securities. There is some recent evidence to suggest that several states may invest more of their retirement funds in home mortgages, at least in part because housing is considered to be a socially desirable investment. In Connecticut, for example, the public employee pension fund recently decided to invest one-third of its new cash flow in mortgages.

(continued on p. 11)

Real Estate Developments

Acts of the 1981 Illinois General Assembly created the Office of Real Estate Research (ORER) at the University of Illinois at Urbana-Champaign. The mission of ORER may be stated in three parts: (1) to contribute to the program of real estate education at the University of Illinois; (2) to promote research, on and off the Illinois campus, on real estate issues; and (3) to disseminate the results of its efforts widely. Professor A. James Heins has been named as the first permanent director of ORER.

With this issue of the *Illinois Business Review* we begin a new feature in order to further the mission of ORER. This section will provide data of current interest to homeowners and members of the real estate profession and construction industry. It will also contain articles devoted to the results of research and analyses of current economic conditions as they affect real estate.

NEW HOMES ARE GETTING SMALLER: WHY?

The accompanying table shows that the average size of new homes has decreased for two consecutive years. This has not happened since these statistics have been compiled by the Bureau of the Census. The National Association of Homebuilders attribute this phenomenon in the main to: (1) demographic factors such as the increase in small-family households, and (2) the current recession and high interest rates.

These attributions fail on several accounts. For one thing, average family size has been declining throughout the 1970s. If this were a major reason, the size of the typical housing unit should have started to decline at least 10 years ago.

One cannot deny the significance of economic recession as a contributor to the building of smaller houses. But if that were a major reason now, why did the decline begin after 1978? Beyond that, there was no marked decline in housing accoutrements — the percentage of homes equipped with air conditioning increased steadily during the same period. It would seem that recession would affect this statistic as well.

The overlooked factor in this equation is the price of energy. The value of fuel oil has roughly doubled since 1978. The price of gas and electricity — after the famous regulatory lag — are catching up fast. And, just as the size of the typical American car has been declining in recent years, so has the size of the typical American house.

The reduction in the average size of new single-family homes taken by itself actually understates the trend to smaller accommodations. Older homes — particularly in areas of high concentration of young people — continue to be converted to multihousehold units. Some part of this trend may also be attributed to higher energy costs.

While apartment construction has suffered under current economic conditions, construction of one-family homes has been much harder hit. In 1981 construction of one-family homes ran at a pace 40 percent less than its peak in 1978. Construction of multifamily units declined only 10 percent in the same period. Since the size of a multifamily unit averages about 980 square feet, compared with a single-family unit average of about 1,700, the trend to smaller accommodations becomes even more apparent. If this is an accurate assessment of the housing situation, there is no reason to look for a marked increase in the size of houses when the recession ends and interest rates fall since higher energy prices will be with us for a long time.

A. JAMES HEINS

Average New Single Family Home Sizes, 1964-1981

	Average Sq. Footage of Living Area	Sq. Footage Change From Previous Year
1964	1470	
1965	1525	55
1966	1535	10
1967	1570	35
1968	1580	10
1969	1605	25
1970	1500	-105
1971	1520	20
1972	1555	35
1973	1660	105
1974	1695	35
1975	1645	-50
1976	1700	55
1977	1720	20
1978	1755	35
1979	1760	5
1980	1740	-20
1981	1720	-20

Source: Department of Commerce, Bureau of the Census
Compilation by the National Association of Home Builders Economics Division

Sales of Existing Single-Family Homes

The charts showing unit sales of existing single-family homes (Chart 1) and their average selling price (Chart 2) in the North Central region of the US confirm what every realtor knows: business is bad. Selling prices have leveled off the last two years, and unit sales have dropped to less than 42 percent of their 1978 peak. If we assume that realtors' commission rates have remained constant in this period, the implication is that gross revenues of realtors in the North Central Region are running under 50 percent of revenues generated four years ago.

Selling prices reported here undoubtedly overstate the effective price being realized by home sellers if we account for the increasing use of "creative finance." A survey conducted by the National Association of Realtors estimates that 70 percent of home sales in April of 1982 involved creative finance, most commonly seller take-backs of first and second mortgages at rates 3 to 5 percent below market. If we were to adjust April selling prices to reflect interest rate concessions, the effective average selling price might be as much as 17 percent less than the $61,900 reported in May of 1982.

One of the questions raised by these events surrounds the prevalence of creative finance. House payments can be brought down by price reductions as well as interest rate concessions. Property tax consideration and brokerage commissions seem to argue for reducing selling prices rather than creative finance.

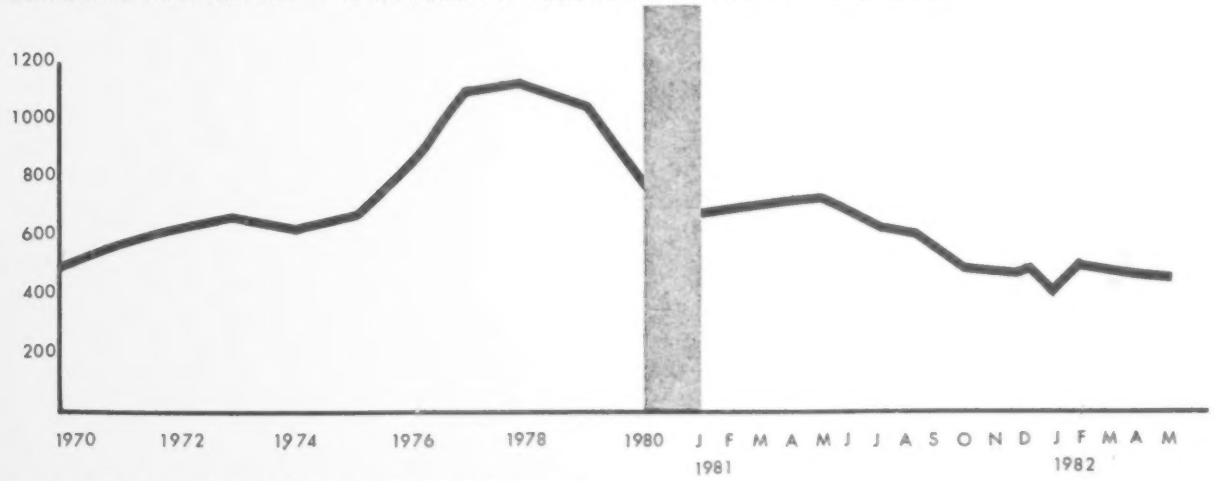
Another troubling relationship revealed in the charts is the fact that unit sales declined so markedly as prices leveled off after 1978. This is a relationship not commonly observed in the stock market, or commodity markets for that matter. There is not an obvious economic theory that explains this phenomenon in the market for real estate.

These problems suggest that attitudes and perceptions of homeowners and brokers about trends in housing values may pose a real barrier to efficiency in the real estate market. Do people understand the rough equivalence between lowering the price of their house and interest rate concessions in the name of creative finance as methods of hastening sale? Brokers continue to advertise on the basis that housing prices are, and will continue, rising, even though there is evidence to the contrary. Why not

(continued on p. 12)

Chart 1

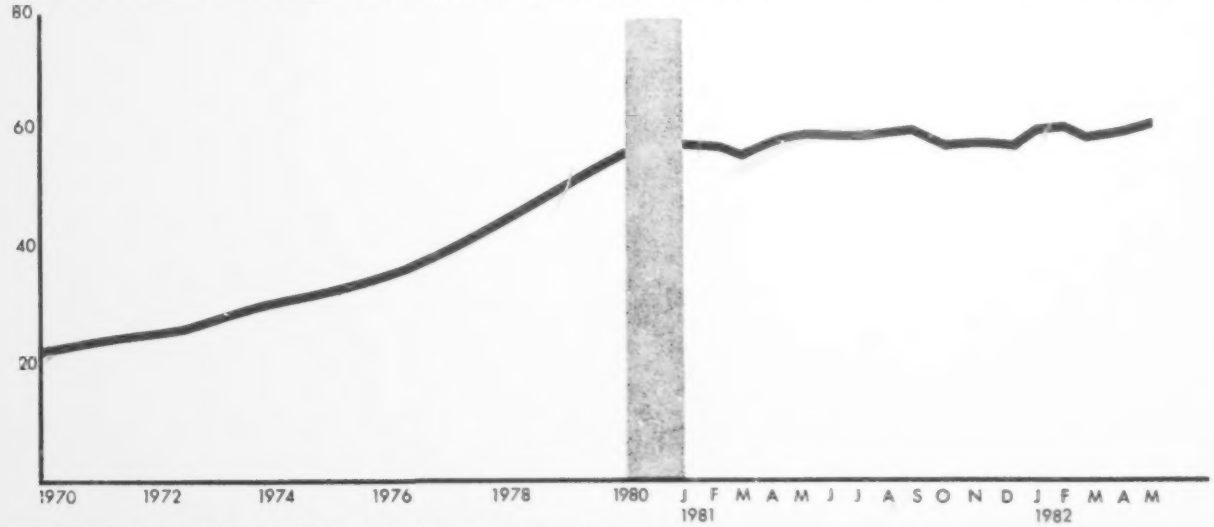
EXISTING SINGLE-FAMILY HOME SALES IN THE NORTH CENTRAL US (THOUSANDS OF UNITS IN SEASONALLY ADJUSTED RATES)



Data Provided by the National Association of Realtors, Washington, DC.

Chart 2

AVERAGE SALES PRICE OF SINGLE-FAMILY HOMES IN THE NORTH CENTRAL REGION OF THE US (THOUSANDS OF NONSEASONALLY ADJUSTED DOLLARS)



Data Provided by the National Association of Realtors, Washington, DC.

The Federal Budget Deficit in Perspective

WILLIAM R. BRYAN AND JOHN F. SCHNELL

Over the past six months a great deal of attention has been given to the adoption of a new federal budget. Part of the controversy surrounding the budget process has related to plans for future expenditures. There has been a renewed emphasis on military expenditures coupled with a de-emphasis of expenditures on social programs. The shift in budget priorities has generated periodic flashes of debate, as specific programs have been cut back and others expanded. Another aspect of the controversy has dealt with the tax cut that took effect in mid-1982. Although there was considerable sentiment for postponing the cut or paring it back, in the end, the cut took place as scheduled.

But throughout the budget process, there has been a persistent focus of attention on the prospective federal deficit. Concern over the deficit has frequently been tied to its presumed relation to interest rates. There is a view that a large or rising federal deficit contributes to high or rising interest rates. In turn, high interest rates are regarded as a major adverse factor within the present weak economic situation.

This article provides background information on the history of federal deficits and addresses two specific issues: one relates to the size of the prospective deficit; a second deals with the relation between federal deficits and interest rates. It is quite clear that the dollar size of recent, current, and prospective deficits are monumentally greater than those occurring in, for example, the 1950s and 1960s. But it is not clear that recent deficits are of such unprecedented magnitude if discussed within an appropriate setting. History offers ambiguous evidence of a relation between interest rates and federal deficits.

How Large is the Deficit?

The federal government incurs a deficit whenever its expenditures exceed its revenues. There is a surplus whenever revenues exceed expenditures. In the 32 years since 1950, the federal government has experienced 5 surpluses and 27 deficits. Summarizing across the entire 1950–82 period, there has been a cumulative deficit of nearly $590 billion. This figure is approximately the addition to the federal debt over the past 32 years.

Surpluses and deficits are plotted in conventional form in Chart 1. This is an arithmetic chart. Compare recent deficits with those in 1959 and 1976; the 1959 and 1976 deficits were large for those periods. Clearly, recent deficits are much larger. For example, the recently adopted budget resolution projects a deficit of $103.9 billion for fiscal year 1983. (The 1983 fiscal year begins October 1, 1982 and ends September 30, 1983. Prior to 1976, the fiscal year began July 1 and ended June 30 of the following calendar year.) Such a deficit is seven times greater than in 1959, and 1.6 times the 1976 deficit. Deficits such as those experienced in recent years are a major basis for the intensified concern over the federal budget. Such deficits have been a factor in calls for a constitutional amendment requiring a balanced budget.

However, there are contexts within which the budget may be considered that create a markedly different impression of its magnitude. It is sensible to evaluate the size of a deficit (an addition to debt) or of debt in relation to other relevant magnitudes. Households and businesses make such evaluations routinely. In the early 1960s, a young couple with an annual income of $6,500 would have been reasonably comfortable with a $15,000 home mortgage. In recent years, a young couple with an annual income of $20,000 could service a $45,000 mortgage with reasonable ease — until interest rates moved to record highs. Similarly, a small retail bakery

Chart 1
FEDERAL DEFICIT AND SURPLUSES

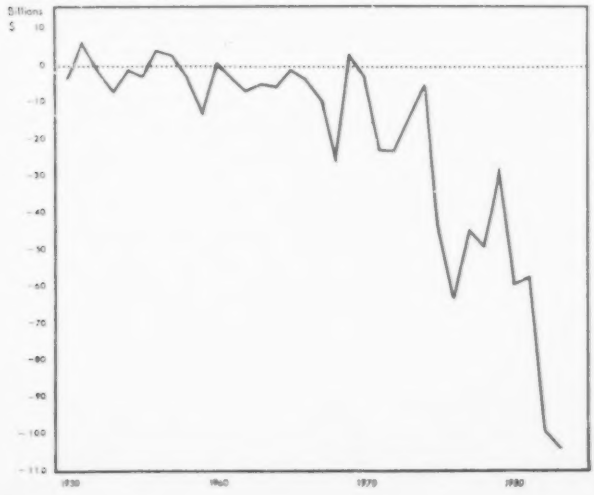


Chart 2
RECEIPTS AND EXPENDITURES

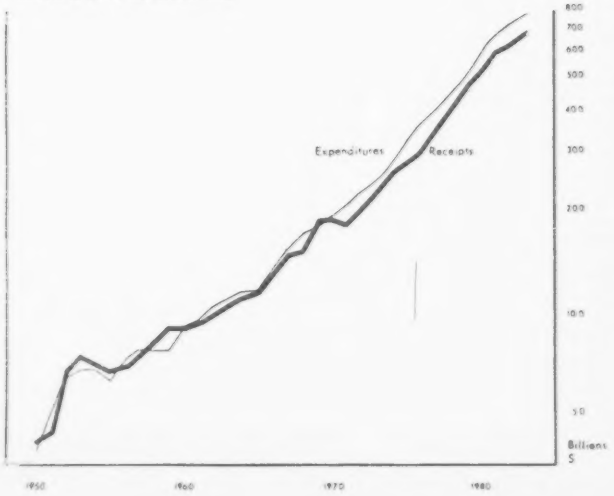
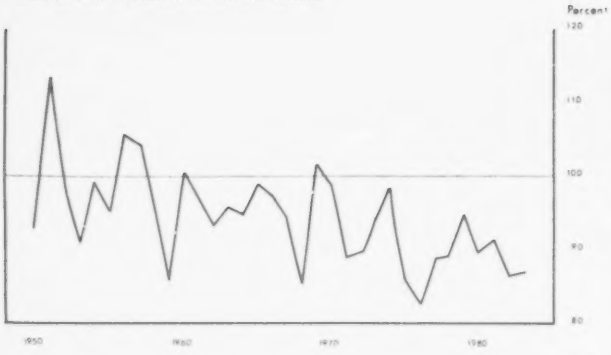


Chart 3
RECEIPTS IN RELATION TO EXPENDITURES



would probably cringe at the thought of a $1 million debt. But, further indebtedness of $1 million to Exxon would represent a trivial addition. In short, it is sensible to evaluate the size of debt, or of addition to debt, in relation to the overall size of the organization incurring the debt.

Federal expenditures and tax revenues are shown in Chart 2. The difference between the two plotted lines is the deficit or surplus. (The deficit discussed here is limited to the income and product account. The so-called unified budget may have either a larger or smaller deficit.) An inspection of this chart may be somewhat surprising — and instructive — to the reader. The recent deficits do *not* appear to be particularly large. Indeed, they look about the same as, or smaller than, those experienced in 1959 and 1976.

The visual impression created by Chart 2 reflects the scaling on the vertical axis. It is a semi-log chart. The virtue of this commonly used charting form is that identical percentage increases look identical on this chart. For example, there was an average rate of increase of 14.6 percent in federal expenditures from 1965 to 1968. There was a slightly less-rapid rate of increase (13.9 percent) from 1979 to 1981. These increases look quite similar on Chart 2. Indeed, in terms of their *importance* it is appropriate that these budget experiences appear to be similar. But, in terms of actual dollars, there was a $59.7 billion expenditure increase in the 1965–68 period, substantially smaller than the $234 billion increase from 1979 to 1982.

A similar impression emerges if the deficit is related to the total federal budget. Chart 3 shows the deficit (surplus) in relation to total federal expenditures. Specifically, tax receipts are divided by federal expenditures — with the results presented as a percentage. A balanced budget is expressed as 100 percent; a surplus is shown as greater than 100 percent; and a deficit is less than 100 percent. The largest surplus shown was in 1951; during that fiscal year, tax receipts were nearly 114 percent of expenditures.

The largest deficit relative to the overall budget position was in 1976, according to the data presented here. During that year (including the transition quarter), tax receipts were only 82.7 percent of federal expenditures. Other very large deficit years were experienced in 1959, 1968, and 1975. In those years, tax receipts covered approximately only 86 percent of federal expenditures.

Another meaningful context within which to view federal deficits is to relate them to the flow of the nation's income (Chart 4). Gross national product, or GNP, is a measure of relevance in judging the size of a further addition to indebtedness. Within this setting, deficits have grown since 1970. In the decades of the 1950s and 1960s, the 15 deficits averaged 1.1 percent of GNP. Since 1970, the 14 deficits will have averaged 2.1 percent of GNP.

The $103.9 billion deficit projected for fiscal 1983 in the recent budget resolution would amount to 3.0 percent of GNP for calendar 1983. (This assumes that GNP will reach $3,412 billion in 1983, or an 8 percent average annual rate of increase in the 1981–83 period.) Such a deficit is large by historical standards, having been equalled or exceeded only three times in the past 33 years.

What does all this add up to? The recent and prospective federal deficits are relatively large. But they are not so large that they present unprecedented, or unmanagable, problems. It is analogous to a $750 increase in indebtedness for a person earning $25,000 per year.

How Big Is the Federal Debt?

The public debt has moved above one trillion dollars. This sounds like a very large number, and it is. Setting aside its sheer size, another troubling aspect of the federal debt is that it keeps growing larger. For most of us there is a deep-seated desire to have that debt eliminated. There appears to be something phoney about a debt that is apparently not paid off or reduced. After all, most of us attempt to pay off the debt we incurred to buy a car or a house. There is just no way that a chart and a few paragraphs can alter long-standing beliefs regarding the sinister nature of the public debt.

The public debt has risen from $255 billion in 1950 to a projected $1,095 billion in mid-1982 (calendar year).

Chart 4
DEFICITS IN RELATION TO GNP

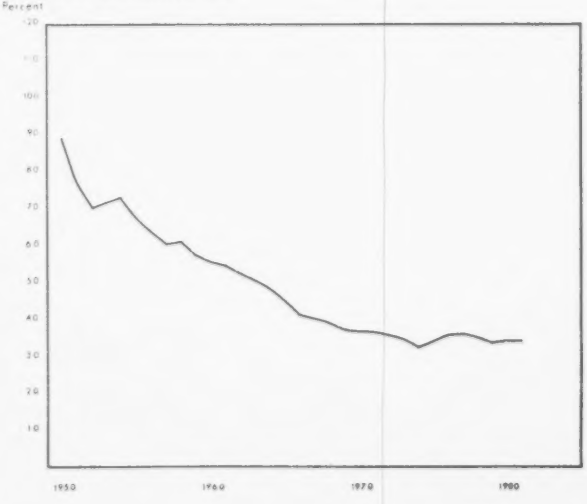
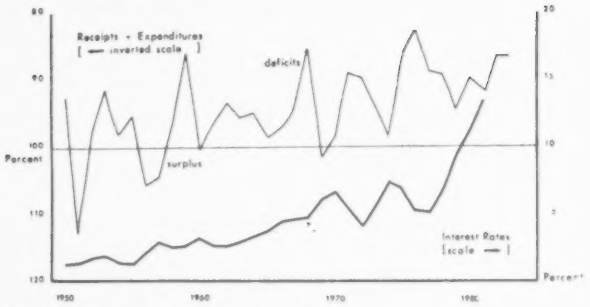


Chart 5
BUDGET POSITION AND INTEREST RATES



1982 and 1983 budget positions are projections.
1982 interest rates are based on six months of data.

The expansion in the debt represents a 5-percent average annual rate of increase over the 1950–82 period. Those are the raw facts. But to interpret these facts, it is helpful to place them into perspective.

Chart 4 shows the public debt as a percent of GNP over the 1950–82 period. The dominant impression is that debt has declined. In 1950, the debt amounted to 89 percent of GNP. Much of the debt then outstanding had been incurred during World War II.

The debt in mid-1982 represents about 35 percent of GNP. In terms meaningful to a household, the federal debt situation is analogous to an individual earning $25,000 per year servicing a debt of about $8,500 (reflecting the purchase of, say, an automobile).

It is easy, however, to overwork the comparison of the federal government with an individual household. For one thing, most households have every intention of paying off all their indebtedness at some point in the future. Under ordinary circumstances, most individuals cannot rely indefinitely on repaying old borrowing with new debt. Secondly, the debt of an individual seldom, if ever, circulates as the ultimate means of payment. That is, individuals cannot create money.

The way major business corporations incur debt provides a better basis for comparison than does the model of an individual household. Like the federal government, they service their debt with scrupulous regard to the terms of the debt. They pay interest, in timely fashion, and pay off specific obligations as they mature. In general, a corporation would stand ready to incur additional debt as long as it believed the added indebtedness would finance an activity that would enable the firm to improve its returns on invested capital, vis-à-vis financing the activity with current receipts alone. Similarly, although not identically, a society, represented by a government, stands ready to finance a (public) activity that would enable it to enhance the welfare of its citizens — an activity that could not be supported by current receipts alone, whether it be a missile system or a jobs program. Within the context of such considerations, a corporation would seldom plan to reduce its indebtedness to zero and neither would a society. In a larger sense, the society has an advantage over the corporation. The society, in order to finance activities for itself, need only borrow from itself.

Below is a listing of five major US corporations, giving their total long-term indebtedness (in millions of dollars) at 10-year intervals.

	1950	1960	1970	1980
AT&T	3,633	7,232	20,454	41,255
Exxon	441	808	2,174	4,717
General Electric	23	251	573	2,093
General Motors	422	2,683	3,531	1,886
IBM	85	425	573	2,099

The growing indebtedness of these corporations is not an indication of their weakness. For an evaluation of their strength or weakness, it would be necessary to consider a host of other considerations. This is not to deny that additional indebtedness *can* be an evidence of weakness. Most media coverage of bankruptcies highlight the inability of the failing firm to service its debt. Indeed, the debt begins to look like the cause of failure.

In any event, whatever the comparison, the federal debt appears to be well within this nation's ability to service it. For more than three decades it has drifted downward in relation to GNP. Moreover, there is no evidence that this downward trend has been reversed.

Do Large Deficits Cause High Interest Rates?

One general argument relating deficits to interest rates is that in order to *finance* the deficit, and because it is such a big entity in the market for loanable funds, the government, by its huge demand for funds, forces up interest rates. In effect, the government can "crowd out" private investment demand, or add to the cost of these potential investments, by pushing up interest rates.

However, an examination of the historical relationship between federal deficits and interest rates reveals very little to suggest a systematic relationship. In view of the evidence, it is difficult to understand why spokesmen for a host of interest groups — Republicans, Democrats, bankers, businessmen, and labor leaders — are virtually unanimous in their confidence that interest rates will remain high until the deficit is reduced. Chart 5 permits a comparison of the federal budget position with interest rates on Treasury bills during the 1950–82 period.

During the decades of the 1950s and 1960s, interest rates rose in periods of economic expansion and leveled off or declined moderately in recessions. Over this same period, the federal budget moved toward surplus during periods of economic expansion (1953–57; 1962–69) and moved toward deficit during economic contractions (1957–59; 1960–62). Such a pattern emerges because lessening inflation slows the rise in government revenues; although reduced inflation also slows government spending, it does so with a lag. So the short-term effect is a bigger deficit in contractionary periods. Because interest-rate declines during recessions did not fully offset increases during business expansions, interest rates drifted higher throughout the period. In short, experience in the first two decades under review presents anomalous results. Within business cycles, when deficits get larger, interest rates decline; when the growth in deficits subsides, interest rates rise. But over the 1950–70 period as

a whole, the generally more frequent deficits are associated with a higher level of interest rates.

In the past dozen years the federal budget has been continually in deficit. Interest rates have exploded upward, especially since 1977. The period since the 1973–75 recession in unlike anything experienced in the preceding 25 years. As in other periods of business expansion, the budget position drifted toward balance during the 1977–81 period when interest rates were moving upward. But the budget did not move into surplus, because the rise in economic activity was insufficient. The economic recovery since the 1973–75 recession has been unusually weak. Since 1979 the economy has shown virtually no growth, and has been in recession since mid-1981. Even so, in 1979, 1980, and 1981 interest rates rose to successive unprecedented levels; interest rates have declined modestly in 1982.

What does all this add up to? As indicated, there is simply not a consistent relation between deficits and interest rates. On a short-term basis, shifts toward deficit in the federal budget are associated with declines in interest rates, and shifts toward surplus are associated with interest rate increases.

Over the longer-term period since 1950, however, and especially since 1970, the budget position of the federal government has moved persistently into deficit. Moreover, the deficits have grown larger since 1970. During the decades of the 1950s and 1960s, the 15 deficits averaged 5.67 percent of the total budget. In the 1970s, the 10 deficits averaged 8.9 percent of the total budget. Thus far in the 1980s, the three deficits have averaged 10.9 percent of the budget.

Conclusions

The confidence that a movement of the federal deficit toward surplus will reduce interest rates is misplaced. Historical experience indicates that falling interest rates may be accompanied by either a rising or a falling deficit. The level of interest rates, and changes in that level, are determined by many factors, at least in the near term.

If there is a relationship between a movement toward a balanced budget and lower interest rates, the factors that exert that relationship operate over an extended period of time. Hence, the time frame relevant for thinking in such terms extends over several years.

(continued from p. 5)

The California Employees Retirement System, the largest of the public funds with assets of over $18 billion, has invested about 25 percent of its assets in mortgages.

Private pension funds, with assets more than double that of state and local government retirement funds, hold about 4 percent of their assets in home mortgages and mortgage-backed securities (which represent shares of mortgage pools of home loans). This represented a share of just over 1 percent of the outstanding home mortgage debt in 1980. Private pension plans invested about 60 percent of their assets in shares of corporate stock, 21 percent in corporate bonds, and 11 percent in US government securities in 1980. The orientation of fund management is an often-cited explanation for the heavy concentration of investment in stocks and bonds. Most private noninsured pension funds are administered by the trust departments of large commercial banks who are more noted for their expertise in stocks and bonds than in mortgages. However, a recent survey by the *Institutional Investor* indicates that banks are losing market share of fund management to firms which specialize in real estate investments.

There is also some evidence that other types of pension funds such as union funds and nonprofit funds invest more heavily in mortgages although primarily in nonresidential mortgages. For example, the Central States Teamsters Union fund with assets of $2.5 billion had 21.6 percent invested in mortgages in 1980. Some building trade unions are showing increased interest in investing pension money in home mortgages as a means of stimulating the construction industry. The nonprofit Teachers Insurance and Annuity Association fund had more than 26 percent of its $14.6 billion in assets invested in mortgages at the end of 1979; however, less than 1 percent was invested in home mortgages.

The prospects for additional investment in home mortgages by pension funds appear mixed. Encouraging signs include the trend to management of funds by firms specializing in real estate investments, the recognition of housing as a socially desirable form of investment by some funds, and recent proposals by the Reagan administration to allow pension funds to invest more in housing (by revising provisions of the Employee Retirement Income Security Act of 1974 which limit the ability of pension funds to invest heavily in residential mortgages). Discouraging signs for housing markets include the continuing low level of pension-fund investment in home mortgages and the tendency to invest more in nonresidential mortgages and real estate equities.

The decline in the role of individuals as a source of home mortgage funds has already been indicated. However, there has been a recent reversal of that trend with a significant increase during the past two years in the various forms of seller financing. This includes contract sales in which title does not change hands until installment payments are completed (perhaps when other permanent financing is arranged). This installment-type of contract sale does not technically involve a new mortgage, and so does not show up in mortgage statistics. In effect, it is an indirect method for the buyer to assume an existing mortgage. If we enter an era of declining or relatively stable mortgage interest rates, the incentive for this and certain other forms of seller financing will soon dissipate.

In summary, it appears that savings and loan associations will continue to be the major originator of home mortgages in the 1980s. However, the ultimate source of funds is increasingly likely to be the credit unions and pension funds, both public and private, along with other investors that may be attracted by mortgage-backed securities. The extent to which this occurs will depend

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upon the relative attractiveness of such securities in terms of risk and return. (In 1980, the estimated yield on GNMA securities was consistently higher than the yield on triple-A-rated corporate bonds and 10-year US Treasury securities.) Even if federal credit agencies such as the GNMA and the FHLMC were to be dismantled, it is likely that the FNMA and possibly other private institutions would offer mortgage-backed securities. The extent of these offerings would depend upon the marketability and profitability of such securities. Even without direct federal government involvement, it would appear that current trends in the terms of mortgages (for example, variable rates, graduated payments, constant real payments, and so on) are such that mortgage-backed securities will be a competitive investment vehicle in the 1980s.

(continued from p. 7)

argue that now is a good time to sell since housing values may continue to weaken? These questions will contribute to research directions at the new Office of Real Estate Research.

A more positive view of these charts would suggest that there is a growing backlog of people wanting to move. If that is the case, and if the log jam frequently attributed to high mortgage rate is broken, the real estate industry may be able to anticipate a strong recovery from its current depressed state. Whether these forces will generate an equivalent recovery in the construction industry is a question. Current energy trends and changes in tax and regulatory policy in Washington might inhibit strong recovery in construction.

Illinois Business Indexes

Index	May 1982	April 1982	March 1982	February 1982	May 1981
Coincident indicator (1969=100)	113.96	13.53	109.2	113.3	132.7
Employment-manufacturing (in thousands)	1039.2	1047.0	1055.8	1064.3	1185.5
Average weekly hours-manufacturing	39.2	38.8	39.2	39.5	40.7
Weekly earnings-manufacturing	$365.34	$359.68	$362.21	$364.98	$361.62
Help wanted advertising-Chicago (1967=100)[a]	45.0	44.0	48.0	51.0	65.0
Help wanted advertising-St. Louis (1967=100)[a]	40.0	38.0	40.0	39.0	56.0
Ordinary life insurance sales (in millions)	$1,998	$2,138	$2,188	$1,839	$1,758
Retail sales (in millions)[b]	$4,536	$4,393	$4,200	$3,614	$4,220
Coal production (in thousands)	5,285	5,607	6,498	4,833	7,916
Petroleum production (in thousands)	2,103	2,138	2,249	1,613	2,095
Vendor performance seasonally adjusted (percent)	29.2	28.5	31.2	34.0	49.5
Building permits (in thousands)					
Residential housing units	1.95	1.11	.67	.52	1.34
Value of residential housing	94,081	55,233	35,773	21,606	69,418
Value of nonresidential construction					
Industrial buildings	13,907	34,439	15,797	8,283	17,924
Office, banks and professional buildings	36,592	31,175	38,908	20,787	41,075
Stores and other mercantile buildings	61,787	10,802	10,156	4,810	9,786
Other	25,300	32,653	19,242	26,881	51,034
Consumer price index					
North Central US		154.1		152.1	
North Central/population more than 400,000		155.2		153.6	
North Central/population 385,000 to 1,250,000		155.1		151.9	
North Central/population 75,000 to 385,000		151.2		149.1	
North Central/population less than 75,000		153.3		151.0	
Chicago	287.7	280.2	276.4	274.9	264.5
St. Louis	285.7		280.7		268.0
Prices received by farmers	116.0	113.0	109.0	110.0	131.0
	1981 IV	1981 III	1981 II	1981 I	1980 IV
Personal income (in millions)	$135,139	$133,616	$129,613	$127,892	$125,688

[a] Source: The Conference Board, *Help Wanted Advertising*, May 1982

[b] Most recent month projected by BEBR